The Journal
OF THE
Michigan State Medical Society

ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

VOLUME XXIII. No. 12
WHOLE NUMBER 268

GRAND RAPIDS, MICH., DECEMBER, 1924

YEARLY SUBSCRIPTION
$5.00; SINGLE COPY, 50c

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ORIGINAL ARTICLES

Office of Publication,
Powers Theatre Building,
Grand Rapids, Mich.

Entered as second-class matter March 12, 1913, at Grand Rapids, Mich., under the Act of March 3, 1879. Acceptance for special rate of postage made under Article 1103, October 3, 1917 and authorized August 7, 1918.

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Original Articles

THE DRIVE OF CIVILIZATION, DISEASE AND DECADENCE*

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Brooks Adams, in his book "The Law of Civilization and Decay," records evidence which can hardly be denied showing that when a highly developed society disintegrates under the pressure of social and economic competition it declines because the energy of the race has been exhausted. It fails to rise because the survivors of such a society lack the vigor necessary, for renewed concentration. If such a highly organized civilization is restored after destruction the material for its restoration must be supplied by the bringing in of barbarian blood which has not been touched by that civilization which has risen and fallen.

Human society oscillates between barbarism and civilization. A tired civilization goes down and a fresh one comes up from barbarism. This is true of great social masses and it is true in the concrete individual instance. The exceptionally devoted, striving school-boy usually comes to manhood exhausted, to be replaced by the wild barbarian, or the lazy Ned, who comes to manhood fresh.

Among all the causative factors pertaining to the social, moral and physical ills which have contributed to the downfall of civilizations in the past and which distress humanity now, none is so important as the factor of fatigue. The intensive drive of civilization is crowding us near to, if not beyond the danger point of physical tolerance. The drive here meant is not that obscure, deep, powerful motivating drive which lashes us on to what has been called the "satisfyingness of mastery and approval," nor the fundamental biologic drive of hunger, sex and physical safety. It is the readily perceptible drive of the neurotic, psychopathic, speed-mad civilization fostered by our modernities to which attention is invited.

Homo sapiens presents a case for the physician. Let the physician correctly evaluate this factor of fatigue, restore the man physically and mentally, and much less will be left for the priest and the politician to do. This correction could be made with very little sacrifice for it is to the pagan services of civilization that the fatigue is due. Needless exertion and vain, vaulting ambition are to blame.

Humanity is succumbing to exhaustion in its struggle to avoid what McKenzie calls the hardship of anticlimax. It must leap from climax to climax. We are so very tired and so confused that we have lost the power to appraise and orient ourselves, and although the remedy is not far to seek, we do not find it. We have not sense enough to sit down. Let us convince brain workers that increasing fatigue is dangerous, that it renders a man unfit for any duty; enforce upon him the needed long repose, and we shall see him rise up, enabled to wage successful combat with many of the pathologies of his own body, and, moreover, as one awakened from long, refreshing sleep, we shall find him ready to proceed in patience with the calm, sweet reasonableness born of normal physiology to the solution of many of humanity's troublous problems of morals and statecraft.

Does humanity realize that it is tired? Hilaire Belloc, in the Yale Review of October, 1923, mentions the element of fatigue as an important influence in determining the selection of books, and Fred C. Kelly, in the humorous Wisdom of Laziness, hints pointedly that he and many other great men have long been tired. No doubt nearly every one has a more or less definite impression that humanity is wobbling a bit under its load. Do we know or care about the perils of fatigue? Is it not a matter deserving interested attention?

Why should humanity *not* be tired? In view of the extraordinary strain and stress of war and reconstruction, in view of "drives" for this purpose and that, in view of repressions, urges, exaltations, and "biologic joy-rides," need anyone wonder that humanity is tired? There is more reason to wonder that the fatigue has not led to general protest and a demand for slowing down.

*Read before Section on Surgery, M. S. M. S., Annual Meeting, Mt. Clemens, Sept., 1924.

If we have at the present time a peak development of human fatigue the explanation is perhaps to be sought chiefly in the merciless drive which began in 1914 and which is still on. A retrospect of these ten years should convince anyone that there is abundant reason for the existence of a lowered index of physical, mental and moral resistance. Since the Armistice we have had drives for this and drives for that until humanity is almost driven wild. The efficiency hound who break into the luncheon club in an hour which should be one of relaxation and recuperation has always been a bother, and he is rapidly becoming a real menace. *One more drive we should have, one planned to drive habitual drivers off the field.* It is not surprising that most of us are irritable and behave in our social and business relations like a man wearing a new lamb's wool undervest. It is not surprising that the hospitals for the insane are full to bulging. There is no less truth than humor in the remark of O. O. McIntyre, that the world has less need of go-getters than we think. It truly needs more of those who appreciate and defend the gentle art of loafing. Kelly may well be taken seriously when he says that lazy people are the hope of the race.

If a man struggle past the norm beyond which he cannot safely go, who is there to stop him, to turn him from the screech and rattle of the cities into the quiet places which are good for body and soul? Generally speaking, no one. From the time he crosses the promontory of the sacrum, mountains higher and ever higher are pointed out for him to climb. He is urged, always and everlastingly, to choose the harder way.

In the drive of education we have sought to take every man, *nolens volens*, fit or unfit, and push him up to an intellectual standard; and he breaks under the strain unless there is in his germ protoplasm that which endows him with intellectual potentialities. Many biologists know that it is time to speed down production, so to speak, in over-education, for humanity is cracking at the top. Do the educators realize this?

No priestess on a tripod is needed to warn us that the highly civilized races of mankind are going backward physically; that the advanced races of the world are, as Wiggam says, biologically plunging downward. Wiggam, in his New Decalogue of Science, reminds us that civilization always destroys the man who builds it; that many diseases are chiefly the by-product of our civilization; that the tension diseases—cancer, goitre, heart disease, degenerative diseases of the arteries, psychoses, insanity and the multiform minor mental and nervous derangements which affect men's behaviour unfavorably, are increasing.

Physicians, the scope of whose reading embraces something of the history of disease will incline to Wiggam's view. The American Indian never knew tuberculosis until he came into contact with the civilized white man,, nor did he succumb to many of the microbic infections which Carr-Saunders has shown are largely the product of our civilization.

Doctor W. A. Evans of Chicago once said that if he were asked to sum up in a single word everything that relates to the causation of tuberculosis, the one word would be "house," the dark, tight house of civilization.

One of the finest of all races physically, the Tasmanian, says Wiggam, melted like a glacier under a tropic sun before the onslaught of measles given to them along with our Golden Rule.

A thousand years ago China came to a point in her civilization where she said, "What's the use of it?" Until recent years she has not tried to lead nor to follow us of the Western half of the world in matters of disease prevention, and yet physicians who have practiced in China, according to Stanley High in "China's Place in the Sun," are almost universal in the assertion that the Chinese physique, in recovering from severe operations and in the ability to throw off disease, is superior to that of westerners. Surgical shock is very rare. Rapidity of recovery from terrible injuries is amazing, and in particular it has been observed that the Chinese are able in a remarkable way to resist the effects of blood poisoning. It is the common opinion that under similar conditions the Chinese will make a more certain and rapid recovery from a major operation or a serious illness than the average American. A coolie uncomplainingly propels a load of more than eleven hundred pounds on a large wheelbarrow. Eating unspeakable food, carrying unbelievable loads for unbelievable distances, sleeping anywhere with a brick for a pillow, they seem absolutely immune to innumerable diseases and dangers which menace the path of the foreigner in China.

In studying the relation of western civilization to health, it is well to consider the fact that in the small city of Manila during the year 1923, nineteen persons died who were more than one hundred years old.

Coming to the consideration of the fact of high civilization upon the incidence of disease in middle life and old age, as we look for evidence bearing upon this question we find that interesting and arresting facts relating to this aspect of the problem abound on every hand.

For example, the following data concerning cancer.

The African in his native country is practically immune from cancer; but observing him after he has become a part of our civilization in the United States, we note that he is not infrequently the victim of cancer. However, owing to the fact that in America he still retains some of the languorous, care-free habits of his original habitat, he is less frequently attacked by cancer than his strenuous white host. Sir Arbuthnot Lane, speaking particularly of Jamaica, says there is no cancer among the people of the West Indies, excepting in the white and among those blacks who have adopted the habits of civilization.

It is believed that cancer was little known in Japan before the appearance there of Occidental civilization. In Egypt it is rare, and in India, despite the filth and over-crowding, the dread spectre of cancer rarely shows itself except in the case of chewers of the betel nut, and the dwellers on the high, cold plateaus where charcoal kangri basket stoves are worn under the flowing robes.

The naked, or almost naked, races hardly know the disease, and our American Indians do not have it so frequently as our whites.

In the Arctic Circle cancer is said to be unknown. However, the statement that it is altogether absent here is perhaps open to doubt, in view of the meagreness of the researches made. Those who have studied the subject of cancer among Eskimos have found it to be not entirely absent from these inhabitants of the far north.

In Mexico, Central America and South America, cancer is said to be of comparatively infrequent occurrence. In North America the frequency of its incidence decreases as the distance from the equator decreases. Bainbridge (The Cancer Problem) and Williams (The Natural History of Cancer) find that cancer mortality in the large cities is lowest among the poor, and highest among the prosperous and well-to-do. Williams regards high feeding and easy living as potent factors in the causation of cancer.

Studies made by Seligman during eleven months among the inhabitants of New Guinea and its neighboring islands reveal that whereas these people are not utterly free from malignant tumors, such conditions are very rare among them. The inhabitants of these islands, as Bainbridge says, having just emerged from the Stone Age, are so little contaminated by the influence of white people that they have had practically none of the eruptive diseases and no venereal diseases. It was found that these islanders are free from gout, arteriosclerosis and other conditions due to faulty metabolism.

Seligman found no cancer among the original native inhabitants of Australia. This writer, in the third scientific report of the Imperial Cancer Research Fund quoted by Bainbridge, concludes that in the rare cases of malignant diseases occurring among the inhabitants of the various islands visited, the incidence of the disease seems to be associated with the adoption by some islanders of a mode of life which simulates to a certain extent that of the civilized white man. That the others are practically immune suggests that the mode of living is an important factor.

Williams has maintained that change from the pastoral life of former times to the pent up, crowded, driving life now led by people in the cities, is responsible for the increase of cancer in occidental countries. He speaks of the rapid encroachment of civilization upon savage territory and the modification of the methods of existence of the latter as explaining at least in part the increased susceptibility of savage races coming under the influence of civilization. Bainbridge concludes that the report made recently by the British Registrar General shows that the lowest cancer mortality is found where conditions of life are hardest. Thus the rapid increase within the last century and a half of wealth, of material and general prosperity, is cited as a causative factor in the increase of cancer in Europe and America. This is a way of saying that while occidental civilization was attaining its highest development, marked increase of cancer came as a by-product.

It has been shown by others that over-crowding and filth do not increase the incidence of cancer. In London cancer is most common in the least densely populated areas where the inhabitants represent the highest civilization. It has been shown by nearly all investigators that primitive simplicity of living decreases the incidence of cancer, and whereas it may be contended that primitive races are occasionally afflicted by cancer, nevertheless, the disease it seems has its highest incidence among the people of Europe and North America, the regions par excellence of occidental civilization. It may therefore fairly be suspected of being a by-product of our driving, striving living, if indeed it does not rest under an actual indictment of guilt.

The increased incidence of toxic goitre in the United States is without much doubt another evil effect of a civilization which in its brutal disregard of the physical resistance of its victims drives them ahead like leaves before the wind. As we do not know the cause of goitre it may be said that the foregoing state-

ment cannot be justified. Can it be proven? *A priori,* no; *a posteriori,* yes. What, aside from surgery, is the principal resource of the physician in treating exophthalmic goitre or Graves' disease? Rest. The rest cure in goitre was used by our forerunners in medicine. Andre Crotti, an authority, says it is as old as the world itself, and adds that Nature applies it constantly. Nature rests in the winter from her spring and summer activities. In medicine rest is a panacea. The best medicine for an over-burdened stomach is rest. Rest is an essential factor for the recuperation of an overdriven heart. It is a necessity for a wrecked nervous system. No wonder then that it was applied to relieve the symptoms of poisonous thyroid glands.

Note what Doctor Crile of Cleveland says in this connection. "If the brain could enter into a state of actual hibernation like the bear, thyroid poisoning would certainly be cured," and Crotti remarks that only by permitting the entire organism to hibernate can we expect to bring about a cure.

What does every physician do first with his toxic goitre patients? He enforces rest in the recumbent posture with an ice-bag over the heart. What lesson does this bring to a physician who sees not merely the individual patient before him, but also sees that patient in his or her relations to humanity as a whole, and sees all individuals in their relation to the brutal influences of environment? Look at the vagatonic, bird-faced woman of business lined up at a one-minute lunch counter; observe the teachers as they pass the schoolhouse door, and see how many of them have bulging eyes and goitrous necks. They are in the drive of civilization. Every physician knows he cannot help these women until he gets them out of it for a time at least. Why not demand rest for them and for all overtaxed humanity? Where is our common sense? Why do we not say to employers, educators and everyone else that these people should rest before the breakdown comes, not after; that they are cracking under the strain of the drive[2].

With respect to the so-called "internal" diseases, the following observations should be interesting. J. K. Goar, President of the Actuarial Society of America, quoted by Wiggam, states that the death rate is increasing at the higher age periods and that the mortality rate from diseases of the circulation and kidneys has increased within this generation by 50 per cent. And Ferderick Hoffman, the distinguished statistician, believes that affections of the circulatory and urinary organs are much more common in a fatal form in early old age than would seem necessary.

The report of the survey of our national physical assets made by Eugene Lyman Fiske at the suggestion of Herbert Hoover concludes as follows: "So far from the draft records giving an exaggerated impression of the degree of physical deficiency that prevails, it is clear that they convey an under estimation of the true conditions. So far as they go they may well arouse concern as to the physical state of civilized man, but much must be added for defects unrecorded which may in later life impair efficiency and lower resistance to disease. A recent report of the British Military Committee was even less reassuring."

Heart disease claims more victims in civilized countries than any other malady, and it is well known that the heart rarely springs a leak except as the result of high pressure evidenced in other parts of the system. Strain and struggle is the cause of much heart trouble. The human heart is trying to keep abreast of the foolish automobile which goes the pace that kills. A preventive is near at hand. It is as Russell Seads, a lay writer, says—a little more sleep, a little more leisure given to complete relaxation and what is most needed for the physical well-being of Americans and all victims of high civilization, more of the "deuce may care" philosophy of Sancho Panza.

Doctor Charles H. Mayo says this of appendicitis and the drive of civilization: "The belief has often been expressed that an enormous number of persons must have died from the disease in the past, but appendicitis was rare in the past ages. It is a disease of modern life. A soil has been engendered and been made susceptible to disease by changes in food which have occurred within the last few decades." The increased incidence of appendicitis, he says, has the same relation to modern life as the increased mortality from cancer.

The main thesis of Oswald Spengler's "Decline of Western Culture," discussed by W. K. Stewart in the Century Magazine for September, 1924, is that human history has not been a continuous development. In the years which the records cover there have emerged eight ripe cultures. Each nourished and developed its own peculiar style to its full possibilities and then began to decline. Each declined sooner or later. As in all things organic, decay, he says, follows upon growth; each culture passed through childhood, youth, manhood and old age. Thus we see that a curve plotted for the course of history would, according to Spengler, present a series of eight rises, or humps, no one of which would necessarily be higher than the others. Stewart notes that we in the western world have assumed somewhat lightly that the general trend of the curve of civilization is continuously upward. Humanity

in our civilization, expects to be carried higher and higher upon the pillows of Providence. Spengler sees men huddling together in big cities and becoming voluntarily sterile. He recalls that the fall of the birth rate was noted by Polybius in Greece and that this fall was marked in declining Rome. It is everywhere you go—in Berlin, Paris, London and New York, just as it once was in Antioch, Alexandria and Rome. Stewart, in the essay mentioned, reminds us that Spengler is gloomy, that he looks forward to winter, the death of western culture, when the western soul, weary of striving, sinks back into its home. He has been called a pessimist, a defeatist of humanity, but this he denies, asserting that to accept the inevitable, to embrace destiny, is the mark of the highest wisdom.

Stewart asserts that there is much for us to do, and that by doing it we may maintain our civilization for centuries on a relatively high level.

Facile criticism may attempt to set aside as useless croaking the warnings of Spengler. Folley may ignore the lessons of accurate historical chronicles, but reason ought to try at least to learn something by study of the underlying biologic facts which determine the course of human tendencies as recorded by history.

As Spengler has said, all the civilizations of history may be represented by an upward curve. We cannot expect the fate of these other civilizations to be reversed for us. Certainly if humanity is racking itself to pieces in modern civilization we cannot expect it to follow the course of a continuously rising curve. There is no biologic basis for such a hope. We have had our acclivity, and whether we reach the declivity soon or late surely depends to a great degree upon how much we hurry. Hurry means tension, and tension means disease and danger for humanity in all its relations.

Today every city in America is more or less like that pictured in these lines taken from the poem of Christopher Morley in the Atlantic Monthly for August, 1924. It would be well if everyone, especially the young, would read and reflect upon this poem.

See her, then—this perfect, perfect city,
This wild fantasia of an artist's dream.
And who has time for dreaming? Throb, throb, throb
I tell you, there is madness in her method
That creeps into the soul. First, just a grain,
A little grain of innocent, harmless haste
And brisk ambition. Then it swells and rots,
Until the inward precious pulse of thought
Is bogged and netted in a lace of nerves;
Until the generous essence, life itself,
Is something we must clutch at, fever for,
Magnificent damnation! Faster, faster,
Herded in mobs and capering from destruction,
With yells and mirth and talking, always talking,
We're scouting to and fro.
And then the telephones go ring, ring ring!
The eager spirit answers, Hurry! Hurry!
Against the naked fury of the brain
The clock is beating faster, tick-tick-tick—
You'll tick yourselves to death.

The face of humanity today is the face of the fainting Marathon runner. Fatigue is written there boldly. The ignorant are rising and will soon attempt to dominate the world because the intelligent are tired. Give intelligence a rest and sleep and ignorance will be routed as it was when our iivilization was young. Let us not make a Frankenstein of our civilization by mad hurrying. Effective dealing with diseases of mind and body and state will follow rest and sleep. Robbed of rest, man is a physical derelict, a potential criminal. Peter was tired, he had lost sleep, when he betrayed Christ for the third time. It will be remembered that dawn was just breaking, for "while he yet spake, the cock crew, and the Lord turned and looked upon Peter."

DISCUSSION

DR. J. H. KELLOGG, Battle Creek: I can do little in discussing the paper except express my great appreciation of and admiration for the highly scholarly and very interesting address from Dr. Eastman. There is no question so interesting as the problem or how to save the human race. At the late Eugenic Congress held in New York, Dr. Davenport in his second address made the statement, which of course we all know, that the human race will ultimately perish, but there are ways in which we can do much to postpone that time. Dr. Darwin made the statement that if our present civilization survives it will have to be because the United States saves it, for there is no hope in any other part of the world.

The question is a serious one, what is the matter with the human race at present? Dr. Eastman calls attention to the fact that we are working too hard. Perhaps another phase should be considered. Perhaps it is not because we are working too hard, but because it is so hard to work, that we have less capacity for work. That is very evident. The great number of people fleeing from the country to the city to find an easy job is one evidence. They feel an innate incapacity for work. I remember as a boy we usually went to the store to do our trading at night, and we almost always found the store open until eleven o'clock. Now they are closed at six o'clock and the clerks have a half day holiday besides, but they get on just as well. Clerks are not able to work, not able to stand the labor required of them a number of years ago. They are constantly calling for shorter hours —first they wanted nine hours, then eight, and now they want six. There is something wrong with our civilization which is taking the vitality out of the race.

We are sending 260,000 lunatics to the asylums every year and there are probably as many still loose. Dr. Wilcox of Cornell University stated, after consideration, that if our birth rate continued to decrease in the year Two Thousand not a single baby would be born. This is going on all over the world. Dr. Osborn, after careful examination of the draft during the late war, found that the race has lost two and a half inches in stature since the Civil War. I have been particularly watching

the results of laboratory researches. I remember some years ago when the study of high protein diet was made. Dr. Crittendon had six college athletes and six professors under observation and found that by reducing the proteins there was an enormous increase in health and nutrition. He himself recovered from rheumatism and found his capacity for work greatly increased. I remember not long ago my good friend Dr. Abrams dined with us and after taking dinner he said, "Dr. Kellog, there was something wonderful about that dinner." I said, "What?" and he replied, "Why, I feel as well as I did before, but I usually have to rest three and a half hours after eating." I told him he did not get any protein for dinner, no beefsteak or eggs. He asked me if I was sure that made the difference and I told him I was sure. He then said he would try the experiment. Three months later I saw him again and he said he had eaten no beefsteak and felt fine. He continued this treatment and found his power to work considerably increased. Roosevelt said that a horse with a large man on his back could run a mile and a half. It was remarked when Firpo was defeated by Dempsey that it was probably due to two or three extra beefsteaks which he had eaten, while Dempsey ate lettuce and fruit. I remember at the time of the Nelson fight a headline in the paper said "the beefsteak did it," and Nelson confessed that he had swiped an extra beefsteak.

Another thing I think is neglect of the colon. If a man takes a great deal of protein and this decays in his colon the absorption in his colon makes him tired. I think this has much to do with our fatigue.

Other things possibly have some relation to our fatigue. Possibly the use of coffee has something to do with it. Coffee makes a man think he is not tired when he is, or it may make him think he is tired when he is not. He does not sleep as well as he would if he did not take coffee. He wakes up and feels tired and wants coffee. Some years ago Dr. Lombard at the University did not permit the boys to smoke when they were preparing for some contests. He made some experiments on muscular power and found that within five minutes the muscle power was decreased. He found that before smoking the maximum was seventy-five pounds while after smoking it was only fifteen, and the number of lifts that could be made was reduced from eighty-four to twelve by five minutes smoking. The muscles could not act properly and did not return to normal condition for several hours. Men complain a great deal about being tired, but what of people who do not work at all?

I think, Mr. Chairman, it is quite important in this question to make a careful study of habits. Another thing which seems to be important is to introduce into our educational system a more thorough consideration of the physical condition of the child. We should make the prime object of education to make the boy and girl good animals. Mr. Spencer said this many years ago. We must have first of all a good physical foundation, but instead of that we see almost no attention paid to the physique of the child.

I recall a business man from Boston whom I saw some years ago who was much exhausted. For three months we did our best to rest this man, but he was just as tired as ever, and finally went away without being much improved. Two or three years later he came back. In the meantime I had learned something of the splanchnic system of vessels. I had learned that they are capable of holding all the blood in the body. I made this man straighten up. He had been sitting in the usual slumped over position and I straightened him up and put on a belt. He went home and when I saw him three years later he told me he was perfectly well. As soon as we got him to straighten up and support his splanchnic vessels he improved.

I remember a college professor who consulted me several years ago who was tired all the time. He had consulted many physicians, but after talking with him for a few moments I told him I had discovered what his trouble was. He was much astonished and much disgusted when I told him he had a wrinkle in his stomach. He said he had none and if he had I would not know it because I had not seen his stomach. I made him undress and showed him the wrinkle. Then he asked me how I knew he had the wrinkle. I told him it was very simple, that he had a wrinkle in his vest and when he straightened up it did not straighten out, and that the blood he wanted in his head was down in his stomach where he did not want it. I gave him some exercises to straighten him up and in three weeks he wrote me that he was doing more work than in many years, and in three months he was doing as much as he ever did in his life. He has continued well and is convinced that the great thing is straightening his abdominal muscles.

I believe the greatest thing we need now is to get physical education into our public schools and get the students to obey the laws of physiology and of biology. Why should we not do this? I am sure it is the most important thing.

DR. W. T. DODGE, Big Rapids: We have listened to a very interesting discussion of this subject by Dr. Eastman and Dr. Kellogg, and I think there is not much more to be said. We are aware from Dr. Eastman that first we meet the injuries and fatigues that come along in early youth and as we reach the age of manhood we still continue to decline and to develop faults that come from increased activity and from increased effort to do more than we should do. He pointed out the condition of the Chinese, but I think very few of us would want to be Chinese. We may be willing to take what comes to us and go along progressing as we have been doing.

I think many things can be done along the lines mentioned by the methods of Dr. Kellogg, which he has been advocating for many years in this state. A while ago I spent some time at his sanitarium and while I was there I met a young woman who said she spent a month there every year. She had done this for many years. She lived in New York but said she found it a very good change and a good rest. I do not know how she lived the rest of the year, but during the month at the sanitarium she was observing all the rules, partaking of the diet prescribed and was apparently well.

We have a Senator from Michigan who was somewhat old when he was elected senator a year or so ago. I have been in somewhat familiar touch with his method of living for some thirty-four years. He has done a great deal of work. He has read a great many books. In fact, I think he has the largest library and the largest special set of books on the subject of psychology and psychological disease in the State of Michigan. He can read those books and obtain from them a great deal of knowledge contained within the covers within a very short time. He is about seventy-one years old and so far as I know is possessed of the utmost vitality and energy, and he has devoted a great deal of his time and energy to the cultivation of himself, his family and his associates. He has always been "tired" in the respect that some people use this term. I used to think he would die at a very youthful age, that he worked too hard and too much. Nevertheless he has continued in perfect health and I think a great deal of that has come about from the fact that he has had diver-

sified interests. As a teacher he was always going about the country and delivering talks and keeping up other interests. I think this has been a great help to him and I believe if we would devote a little more time to other pursuits than the one in which we are engaged, and in which we are making our living, it would be much better for us than to confine ourselves, as most doctors do, to our own life work.

I wish to express my appreciation to Dr. Eastman for the very fine address he has given us, and also to Dr. Kellogg for his discussion.

(No closing remarks from Dr. Eastman.

INFANTILE TETANY WITH REPORT OF A CASE*

E. P. RUSSELL, M. D.
ANN ARBOR, MICHIGAN

The term "spasmo philia" is frequently used interchangeably with the term tetany, but the tendency at present among many physicians is to apply the former term to those children who are predisposed to spasms or convulsions. The term tetany is restricted to the clinical entity which we will consider here. To be more exact "Infantile Tetany" is a better term and will distinguish this condition from "Gastric Tetany" which we will not consider.

Infantile tetany is described as a disease characterized by convulsions, carpo-pedal spasms, laryngo-spasms, and an extreme irritability of the nervous system to mechanical and electrical stimulation.

For years observers have noted the close association between rickets and tetany. At the present time, with the aid of the X-ray, it has been made quite clear that all cases of infantile tetany have rickets, but all patients with rickets do not have tetany.

The disease is rare during the first three months of life. I have seen it in a premature infant. It is found with greatest frequency during the latter half of the first and during the second year of life. There is also a marked seasonal variation in incidence; it being rare in summer and autumn, but very common in winter and early spring, especially during the months of February, March and April. It has been noted that it is more common in Italian and colored infants, due probably to their greater susceptibility to rickets.

Many theories have been advanced as to the cause. A great many writers attribute it to some predisposing factor, as the so-called "spasmo philic diathesis" and consider it a phase of the status thymico lymphaticus, but while it occurs in the pale "lymphoid" type of child, it occurs as frequently in other types of children. Heredity may play a part, and certainly feeding is an important factor. The artificially fed infants, and especially those fed exclusively upon cow's milk, furnish the largest number of active cases, but breast fed infants are not immune to the condition. Because of its seasonal incidence the following theory has been advanced:—tetany occurs mainly in the late winter and the early spring, as has been stated, or at a time immediately following that period of the year when the concentration of the actinic rays of the sun is low, and is cured spontaneously during the early summer. This fact has brought about the belief that rickets plus lack of sunlight results in tetany.

The main pathological finding is a deficiency of calcium in the blood serum. The calcium content of the brain in children dying from tetany is distinctly lower than normal. It has been shown experimentally that a deficiency of calcium in nervous tissues produces an increased irritability to electrical and mechanical stimulation, while an increased calcium decreases this irritability. The excellent researches of Howland and Marriott[1] seem to show convincingly that a reduction of the calcium content of the blood is the prime cause in the production of tetany. The actual factor which causes this loss is unknown. The normal calcium content of the blood serum is between 10 and 11 mg. per 100 cc. When the serum content sinks to 6 or 7 mg. of calcium per 100 cc. frank evidences of tetany appear. The symptoms continue active as long as the calcium content remains low and disappear when it rises to normal. We may conclude from this, then, that some food deficiency plus presence of rickets, plus lack of sunlight, in some unknown manner produces a deficiency of the calcium content of the blood serum which in turn produces an increased nervous irritability.

The symptoms of tetany may be divided into two groups: the manifest and the latent. The chief symptom of the manifest form is the carpo-pedal spasm. The upper extremities are almost invariably involved. The hands show the peculiar so-called "obstetrical position" wherein the thumb is drawn into the palm, the fingers adducted and flexed at the metacarpo-phalangeal articulations, but extended at the more distal joints, and the wrists flexed. Often, too, the forearm is flexed and the upper arm drawn to the body. The lower extremities are not always involved, but when they are, they show a flexion at the knee joint while

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the feet are held in a position of equino varus. There is often pain accompanying this chronic spasm causing the infant to cry out. Parasthesias may be present also. Another and very common manifest symptom is the laryngo-spasm giving the characteristic inspiratory "crow" in the milder form, and causing dyspnea, deep cyanosis and an anxious terrified expression combined with convulsive inspiratory efforts in a severe form. The characteristic crow is a pleasant sound, slightly resembling the "whoop" of pertussis, and may occasion much pride on the part of the parents, being looked upon as a mark of precocity. The crow may be induced by blowing in the infant's face, or it may be produced during crying. The severe form of the laryngo-spasm causes great concern on the part of attendants, and may well do so, as death is not at all uncommon during an attack. At times general convulsions may follow a severe attack. Any slight disturbance may precipitate an attack. It is always dangerous to make a throat examination in cases showing laryngo-spasm. A third manifest symptom is the so-called eclamptic state; this is characterized by convulsive seizures, not unlike the type of convulsions seen in epilepsy, and is frequently mistaken for that disease. The attack begins with a tonic form of convulsion, followed quickly by a clonic state. The spasm generally starts in the muscles of the eyes and face and then rapidly extends to the extremities. The breathing is laboured and may be accompanied by cyanosis. The spasm lasts only a short interval, consciousness returns almost immediately and the child may appear entirely normal after the attack. The seizures may occur at frequent intervals. The serum calcium content in cases showing convulsions is 7 mg. or below as a rule. This figure is called the convulsion level.

The latent stage of tetany is the one most frequently seen. These cases rarely come to the physician except when complicating some other condition and even then may be overlooked by him if he is not especially on the lookout for them. The crow or mild laryngo-spasm is included by many among the signs of latent tetany, but the signs commonly found are Chvostek's, Trousseau's, the peroneal and Erb's phenomenon. The Chvostek's sign is the most constant finding in these cases. In the absence of electrical apparatus and laboratory facilities for determining the calcium content of the blood serum, it is on this sign that the diagnosis is most frequently based. It is elicited by tapping the cheek over the superficial course of the facial nerve. In cases of tetany this is followed by lightning-like contractions of the facial muscles. It may extend to all three branches of the facial nerve, or may be limited to one or two. Most commonly the contraction is in the orbicularisoculi muscles, and is most frequently seen about the inner canthi of the eyes. The contractions may be well marked or so slight as to require very close observation for their detection. Slight contraction about the eye may be the only evidence of the condition present. Great care must be exercised not to mistake lip twitching induced by striking the muscle. Closely allied to the Chvostek is the peroneal sign which is elicited by tapping over the peroneal nerve on the lateral aspect of the leg, about midway between the ankle and knee. If positive, the foot is quickly everted. This sign is less frequently present than the Chvostek's. Trousseau's phenomena is elicited by firmly compressing the arm above the elbow with the hand or a rubber band sufficiently to cause a blanching of the distal part. When it is positive, the hand will assume the "obstetrical position" described before, or a tonic spasm of the digits will occur; this is the least constant sign. Erb's phenomena represents the hyper-excitibility of the peripheral nerves as determined by the use of the galvanic current. The contractions occur with the making and breaking of the current and are called "closing and opening" contractions respectively. The nerves react differently to the different poles also. For these determinations a galvanic battery with a milliamperemeter graduated in fifths up to ten or more milliamperes is necessary. The peroneal, the median or the radial nerve may be used. The large indifferent electrode is placed on the abdomen. The skin and electrodes should be moistened with saline. The electrodes should be of a definite size. Two observers are necessary; one to regulate the current and read the ammeter, and the other to make and break the current and note the contractions.

In the first six months of life, any contraction with a current of less than 5 milliamperes, except the cathodal closing contractions, points to tetany. (No evidence in regard to tetany can be drawn from the cathode closing contraction.) An opening contraction, either cathodal or anodal, with a current of less than 5 milliamperes, is positive evidence of tetany. Under two years of age an anodal opening contraction

with a current of less than 5 milliamperes, and an anodal opening contraction with less current than that which will cause an anodal closing contraction is presumptive evidence of tetany, an anodal opening contraction at ½, 1 or 2 milliamperes definitely indicates a latent tetany. Cathodal opening or cathodal closing tetanus with a current of less than five milliamperes in any child under 5 years is evidence of tetany.

The figure obtained may vary from day to day on the same case, and, also, may vary with different observers, so for these reasons, repeated determinations are necessary. The serum calcium in latent tetany is usually above 7 mg. The signs of latent tetany are present in manifest tetany also, but in a more marked degree. Frequently, however, they cannot be elicited during or following a convulsive seizure.

A latent tetany may at any time become manifest as the calcium content of the blood serum falls. Many latent cases suddenly become manifest in the presence of an acute infection, and a great many times the severe convulsions associated with acute upper respiratory infections and otitis media are due to this fact.

THE DIAGNOSIS OF TETANY

Any patient showing signs of rickets should be examined for signs of latent tetany especially during the winter and spring.

Tetany is the most common cause of convulsions in infants under two years of age. Complaints of "holding the breath," "crowing," inspiration difficulty, convulsions, twitchings and spasm of the digits should lead one to suspect this condition. The examiner should first search for signs of rickets, and if these are present, the probability of tetany is increased. The presence of Chvostek, peroneal or Trousseau's sign, or of any one of them, is good presumptive evidence, and where facilities for further studies are not available justify active treatment. In a case with convulsions, the absence of these signs does not exclude tetany for frequently they may be absent due, possibly, to nervous exhaustion, but may be elicited on a subsequent examination.

The electrical reactions, under favorable conditions, are diagnostic, but the most conclusive evidence is the finding of a reduced content of the blood serum. Tetanus is distinguished by the presence of stiffness of the neck and jaw muscles and is a rare infection in infancy. Cases of meningitis may resemble tetany especially if convulsions are present, and, indeed both conditions may occur simultaneously. Therefore, a lumbar puncture is advisable in cases showing convulsions. The spinal fluid in tetany is normal. The differentiation between epilepsy and tetany may require greater time and study. The type of seizures may be very similar, but a return to clear consciousness immediately after the convulsion points to tetany, and further evidence for it should be sought. The older the child, the greater chances in favor of epilepsy.

THE TREATMENT OF TETANY

Prophylaxis should be emphasized. Maternal nursing is one of the best preventives, but is not certain as rickets and tetany do occur in breast fed infants, especially in colored and Italian babies. Prevent rickets and you will prevent tetany. Cod liver oil, sunshine, and good hygiene are of greatest value.

To treat an established tetany, one must use measures that will increase the blood calcium rapidly and permanently. Temporary starvation, catharsis, and change from cow's milk to maternal milk have all been employed, but, at present, are usually considered accessory to more potent measures. The effect of cod liver oil with and without phosphorous has been more completely studied. Gradual, but rather slow improvement has been demonstrated by their use. The calcium concentration of the blood serum can be increased by the administration of calcium salts. The chloride of calcium is more effective than the lactate. This has been proved by Gamble and Ross[2] to be due to the unoxidizable chlorine iron (cl.) This is in agreement with the fact demonstrated by Scheer[3] that placing hydrochloric acid in the milk will cause the symptoms of infantile tetany to disapepar, and that ammonium chloride had a similar effect. Gamble and Ross have shown that the ingestion of calcium chloride, hydrochloric acid or ammonium chloride produces the same acid effect in the baby, this effect consisting of a reduction of the plasma bicarbonate, due directly to an increase in the chlorides and an elevation of the hydrogen ion concentration of the plasma. This reduction of the plasma bicarbonate and increase in the hydrogen ion concentration probably increases the ionized fraction of the total calcium content of the plasma, and this increase in effective calcium decreases the hyperirritability of the neuro-muscular apparatus.

The relief of tetany by the administration

of these hydro-chloric acid producing substances is rapid but of short duration, the symptoms returning very soon after the cessation of medication, so that some procedure leading to more permanent results should be used.

It is a recognized fact that even with continued cod liver oil and calcium therapy, the return of the serum calcium to a normal figure may be very slow, although the clinical findings of tetany may disappear fairly promptly.

The fact that the seasonal incidence of tetany indicated lack of sunlight as a causative factor led several men to investigate the effect of ultra-violet radiation on the disease, Kramer, Casparis and Howland[4], Sachs[5] and Hoag[6] have carefully investigated the effect of ultra violet irradiations on the calcium content of the blood serum and report an increase.

Hoag[6] reported a series of cases which shows uniformly good results with the use of the ultra-violet rays from an all mercury electrode, quartz encased burner and using 4 amperes on a 110 volt circuit. The trade name for this is the "Alpine Sun Lamp." The technic used was this:—The patients were exposed with the lamp at a uniform and unvarying distance of 50 cm. (20 in.) from the surface of the body. The initial dosage usually was two minutes to the front and two to the back of the body, giving a total of four minutes, and increased one minute to the front and one to the back daily unless contraindicated by erythema. Hoag did not exceed a maximum total exposure of 40 minutes daily.

The total length of exposure necessary to cause an increase of 1 mg. of calcium in 100 cc. of serum varied from 17 to 65 minutes with an average of 41 minutes. The symptoms of nervous irritability disappeared in from 4 to 8 days, and the average number of days under treatment was 14. He concludes:

"In eleven patients with infantile tetany, ultra-violet rays applied in amounts approaching the limit of tolerance, and unaccompanied by other treatment, caused a progressive and permanent relief of the clinical symptoms, paralleled by the return of the serum calcium concentration to an essentially normal figure. The rise was proportionately more rapid in the case having the lowest initial concentration of calcium."

In cases having severe symptoms as convulsions or laryngo-spasm, calcium chloride should be used to give quick relief to these distressing manifestations and ultra-violet irradiations begun at once as a permanent curative measure. The calcium chloride may be discontinued after a few light treatments have been given. After the serum has been brought up to its normal figure, the light may be discontinued, but cod liver oil should be given and other general measures instituted for the relief of the rickets underlying the tetany. If an ultra violet lamp is not available and sunlight used, it is well to remember that direct sunlight only is of value and that the beneficial rays are filtered out by passing through glass. This would render it necessary to place the infant out of doors with the entire body exposed to the sun, but climatic conditions render such a procedure impossible as a rule.

CASE REPORT

The following case is unusual in that it occurred as late in the season as July in such a severe form.

Baby F. B. was brought to the University Hospital, July 6, 1924, with the complaint of convulsions. He was 4½ months old and weighed 9 pounds. The family history was entirely negative. The patient was said to have been a few weeks premature, but delivery was normal and the birth weight 3½ pounds. He was breast fed for two months when the supply became insufficient, and supplementary feedings given for the third month. The maternal supply failed entirely so he was weaned and given cow's milk formula with dextri-maltose. He did fairly well, but was constipated and required castor oil and milk of magnesia at frequent intervals. No orange juice or cod liver oil had ever been given. His present illness began three days prior to entrance with a severe crying attack followed by convulsions. These were repeated every 30 to 50 minutes. The following day a physician was called and found that the patient had a temperature of 104F. He gave calomel by rectum. The convulsions recurred at less frequent intervals, every 2-3 hours, following the catharsis. The day before entrance, a second physician was called who prescribed chloral hydrate by rectum. This had little effect. Both physicians gave a fatal prognosis. On questioning the mother it was found that the baby had been kept indoors almost constantly since birth and had seldom been in the sunlight.

On physical examination, the child was seen to be fairly well developed, but poorly nourished, and did not appear to be acutely ill. The anterior fontanelle measured 4x5 inches in diameter and was not tense or bulging. The parietal bosses were very prominent and there was well marked craniotabes in the parietal and occipital regions. The eyes, ears and nose and throat were negative. There was no stiffness of the neck. The ribs showed a well marked rachitic rosary. The respirations were normal in character and examination of the heart and lungs was negative. The liver was felt 2 cm. below the costal margin. The spleen could not be palpated. There was a slight epiphyseal enlargement at the wrists, and a moderate bowing of the tibiae. The cervical and inguinal glands were palpable. The tendon reflexes were hyperactive. There was no Kernig's or Brudzinski's. Chevostek's sign was elicited but was confined to the upper eyelids on both sides. The peroneal sign was elicited but Trousseau's was not. Erb's sign gave the following results:

C.C.C.	A.C.C.	A.O.C.	C.O.C.
1.8 ma.	1.8 ma.	1.8 ma.	2.0 ma.

Lumbar puncture was done and a clear fluid obtained under normal pressure. There were three cells and no increase in globulin or albumin. The white blood count was 9,200; blood culture was negative and the temperature was normal. The serum calcium was 6.3 mg. per 100 cc's.

Treatment—Fifteen grains of calcium chloride were given by mouth three times daily and quartz light therapy was started at once. The exposures were made at a distance of 20 inches and the treatment given as outlined before. The calcium chloride was discontinued July 10, or three days after entrance. On July 15, after a total of 40 minutes of exposure to the quartz light, the serum calcium was found to be 11 mg. per 100 cc. The patient did not have any convulsions after entrance. The quartz light therapy was continued until July 31, when the patient was discharged from the hospital apparently recovered from his disease. His mother was instructed to give him one teaspoonful of codliver oil three times a day. He was seen one month after in the out-patient department, and during that interval he had gained 23 ounces in weight, was not at all irritable, and was apparently in excellent condition. The cranio tabes could not be demonstrated at this time. The mother reported that he slept very well, seldom cried, that his bowels were regular so that catharsis was no longer necessary.

This case illustrates very well the effect of quartz light therapy on infantile tetany. The very rapid rise in the serum calcium may have been due to the combination of the calcium therapy and the quartz light.

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HEMOLYTIC JAUNDICE

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Hemolytic jaundice is a disease of excessive blood destruction, with superabundance of microcytes. The red cells lack resisting power. By a process of fragmentation they become smaller and smaller, their disintegration resulting in the accumulation of large quantities of bilirubin in the blood, without bile salts. It is now believed that in the normal destruction of red blood cells in the body hemoglobin is liberated, and that bilirubin is formed from it as an end product. This bilirubin in the blood is known as normal bilirubinemia. In hemolytic jaundice there is an excessive amount of bilirubin in the blood—a hyperbilirubinemia—due to the increased rate of cell destruction. In a recent article by Bernheim a method of quantitiatively estimating bilirubinemia is described—a method that promises to become a valuable aid in the differential diagnosis of hemolytic bilirubinemia from the secondary anemias.

Hemolytic jaundice appears in two forms, congenital and acquired. Murchison in 1885 reported different members of the same families suffering from hereditary jaundice without enlargement of the liver or spleen, but without data as to the blood condition. From the clear history he gives of these cases he must have had the hemolytic form of jaundice in mind.

The first clear description of the syndrome of hemolytic jaundice is by Wilson, of England, who reported his observations on six members of one family, representing three generations. Three years later he described his autopsic findings and microscopic examinations of the spleen, liver, pancreas, and lymphatic glands. In 1898, Hayem described five similar cases, not hereditary, of enlargement of the liver and spleen, with disturbances of digestion accompanied by anemia, which latter condition attained a high degree of severity. In 1900, Minkowski observed an hereditary affection resembling a chronic jaundice, with urobilinuria, splenomegalia and siderosis of the kidneys, in eight members of a family—three generations. In 1907 Chauffard proved that the congenital form of hemolytic jaundice is accompanied by a diminution of the resistance of the red corpuscles to sodium chloride. This is called "globular fragility," a condition which is never found in diseases of the liver or bile ducts.

The subjective symptoms in hemolytic jaundice are really due to the anemia. The patients complain of irregularity of the heart, dizziness, and general weakness. In some cases they have attacks of colic that seem to be of biliary origin. Then again, there may be disturbances that seem to be referable to the gastro-intestinal tract. The symptoms are not constant, and periods of good feeling may alternate with bad. Very often there are pains in the region of the spleen. In contrast with the usual form of jaundice, hemolytic jaundice is not attended by irritation of the skin and the sensation of itching. The disease occurs in all stages of life and attacks both sexes equally.

In the majority of patients there is a marked paleness of the skin and of the visible mucous membranes, which vary as to their severity. They are all noticeably icteric, and the predominating color is gold or canary yellow. The pigmentation is not as pronounced as in cases of obstructive jaundice, nor as dark as in cirrhosis of the liver or bronze-diabetes. It varies with physical exertion. Hemorrhages occur, especially from the nose, sometimes from the gums, the palate, or the inner surface of the cheeks. No exanthematous changes of the

*Read before the Michigan State Medical Society, Mt. Clemens, Mich., Sept. 9-10-11, 1924.

skin occur, as in other forms of jaundice. There is no fever, neither is there any essential change in the thoracic organs. There are, however, slight systolic murmurs over the heart at the apex and the base, without increase of the second sound. There is no bradycardia. The liver may be enlarged, but not necessarily so. Along with the intensification of the subjective condition and the poverty of the blood, there is also an increase in the size of the spleen. Sometimes also a perisplenitis occurs.

The feces are usually darker than normal; the masses are very large and contain no urobilinogen, but the urobilin content is high. The excretion of cholesterol in the feces is larger than normal. The urine contains a very decided percentage of urobilinogen, and though urobilin is frequently present it is not always. When the disease becomes aggravated, the urobilinuria as well as the bilirubinuria becomes worse. The excretion of urea and phosphates in the urine is not increased. The liver seems to function normally.

The red corpuscles, as a rule, are very much reduced in number, the average being from one and a half million to three million. In the acquired form and in advanced stages of the disease the oligocythemia attains a higher degree. In general the hemoglobin value corresponds to the number of red corpuscles. Frequently the color index is high, especially in stages of exacerbation. The red corpuscles, especially in the hereditary form, show a characteristic condition of anisocytosis. Polychromatophil erythrocytes occur very frequently. Nucleated red cells which are strongly polychromatic are sometimes found. There are also erythrocytes with Howell-Jolly bodies. The percentage of reticulated red cells is increased in hemolytic jaundice, while this condition has not been observed in obstructive jaundice. The number of white corpuscles is usually normal and rarely reduced. The polymorphonuclear neutrophilic leukocytes increase and the myelocytes appear decidedly increased in the acquired form. There is also an increase of the mast cells—important because it indicates increased activity of the bone marrow. As to blood platelets, some observers maintain that they are reduced in number and some that they increase in cases of improvement.

The reduction in osmotic resistance of the erythrocytes to common salt solutions in all cases of hemolytic jaundice has been established and is the most important sign, as well as pathognomonic of the disease. In determining the beginning as well as the completion of hemolysis the technique is based on observation of the conduct of the red corpuscles with regard to graded solutions of sodium chloride. Normally the minimal resistance, in terms of hypotonic salt solution, is about 0.4 per cent. In congenital hemolytic jaundice the increased fragility is demonstrable in both the whole blood and the washed corpuscles, while in acquired hemolytic jaundice it is exhibited when washed corpuscles are employed.

Lysins and agglutinins are present, but autolysins and isolysins are not always found in the blood serum. It must not be forgotten, however, that isolysin is present in various diseases, as well as in health. Auto-agglutination of the red blood-corpuscles is considered characteristic of acquired hemolytic jaundice. If a drop of washed normal red corpuscles be added to ten drops of the serum of the patient, agglutination occurs within a few moments.

Chemical investigation shows that the blood serum, which is sometimes yellow-brown or even greenish, always contains biliary pigment in the form of bilirubin. There are two forms of bilirubinemia to be distinguished; one form depends on bilirubin being found in the blood serum as well as in the bile—these are cases of obstructive jaundice; and in the other form it is found only in the blood—cases of nonobstructive jaundice. In obstructive jaundice the blood serum gives a quick and complete diazoreaction to bilirubin, while in nonobstructive jaundice if there is any reaction of the hemolysed bilirubin it is slow in making its appearance. Addition of alcohol in the first instance breaks down a considerable part of the biliary pigment, with precipitation of albumin colored yellow. In the other case there is little precipitate, sometimes none at all. The variation in the bilirubin finding is a good criterion for determining the severity of the blood disintegration. Urobilin in the urine, feces and duodenum is high and always occurs in the blood-serum of hemolytic jaundice—in the hereditary as well as in the acquired form.

Dry residue and protein of the erythrocytes and the albuminous content of the blood-serum are normal in hemolytic jaundice. The reduction of erythrocytic resistance and the agglutinating action of cholesterol have no connection. There is less cholesterol than normal in the organs. The total fat and the lecithin in the spleen are less than in the normal spleen, but there is a higher percentage of total cholesterol in the fat of the spleen of hemolytic jaundice patients than in the normal spleen.

The course and duration of the disease in the hereditary form is on the whole harmless and does not imperil life. In the acquired form it is different. The disease sometimes starts with an acute fever, and patients complain frequently of pains in the abdomen, especially in the region of the spleen. With the increase in the severity of the subjective complaints

there is an intensification of the objective condition. Then again long continued remissions may occur.

In the hereditary form the spleen is very much enlarged, the capsule and trabeculae exceedingly thick; the tissues are loaded with blood corpuscles and exhibit irregular spots, probably due to small hemorrhages. The connective tissue is abnormally thick. The malphighian bodies seem reduced, and some seem indurated; the central artery in these is obliterated; the lumen in less advanced cases is narrow and the walls are thickened. There is no pigment about the malpighian bodies. Occasionally there are precipitates of a gold-brown color in the interstices of the reticulum. There is no evident increase of connective tissue or enlargement of the capillaries of the liver. Only a few of the liver cells are modified.

We find the pathogenesis of hemolytic jaundice in the reticulo-endothelial system which is made up of Kupffer cells. The Kupffer cells form not only the capillaries of the portal circulation in the liver but also the lining of the venous sinuses in the spleen, in the hemolymph glands, in the bone marrow, in the suprarenals, in the alveoli of the lungs, and in the subcutaneous tissues of the body. These cells are also called clasmatocytes or histocytes. They have a great affinity for iron, and it is now believed that they have everything to do with the formation of bilirubin and that the liver itself functions as an excretory organ for this substance. Since the reticulo-endothelial system and the Kupffer cells elaborate the bilirubin found in the blood in hemolytic jaundice, it is of great advantage to have a test for the finding of this definite bilirubin. The van den Bergh test does this very thing and we find the bilirubin in hemolytic jaundice as the delayed-direct reaction. This is due to the fact that the bilirubin derived from extrahepatic sources exists in protein combination and is broken up gradually in the diazo-reaction. The recognition of latent forms of hemolytic jaundice is now possible through the van den Bergh method.

A variety of theories have been presented as to the pathology of hemolytic jaundice. It may be accounted for on the theory of a primary liver or bile-duct change or of a primary reduction of the erythrocytes or the erythroblast apparatus. Another theory treats of a pathologic alteration in the function of the spleen and in the co-operation of various organs. The change of hemoglobin into bilirubin takes place in the blood current; we may therefore say that the disease is a hematogenous jaundice. There is also the theory of congenital abnormality or insufficient development of the bone marow, recognizable in the reduction in the number of the red blood-corpuscles.

The primary condition seems to be a functional change of the spleen; then follows the destruction of the red blood-corpuscles, and then anemia and jaundice. This is the theory of the splenic origin of the jaundice. Splenic douches, splenic massage, Roentgen-ray treatment of the spleen reduce the resistance of the erythrocytes. In hemolytic jaundice the function of the splenic cells is so deranged that over-destruction of erythrocytes results, while in pernicious anemia there is an over-activity of all the reticulo-endothelial cells, with a somewhat similar result. In twenty of thirty-two splenectomies performed by the Mayos, bile-pigment and gallstones were present. They believe the stones are to e attributed to the enormous amount of pigment derived fro mteh excessive red blood-cell destruction in the spleen.

The disease of the spleen shows itself in three directions. First, it excretes into the circulation the substances which injure the red corpuscles; secondly, a part of the reticulo-endothelial processes is diseased; and, finally, the pathologic spleen exhibits a spodogenous tumor. Thus we account for the immediate beneficial result of splenectomy in this disease. Splenectomy, as a rule, does not seem to disturb the mechanism of the physiologic process. There is an antagonism, however, between the spleen and the thyroid with respect to the formation of the blood. Inasmuch as the thyroid is the excitant and the spleen the inhibitant, the co-operation of the two regulates the normal function of the blood-forming apparatus. The spleen plays a role in the formation of the hyperbilirubin in hemolytic jaundice, forming bile pigment out of destroyed blood corpuscles.

Previous infections are involved in acquired hemolytic jaundice, as occurs in both hereditary and acquired syphilis. There may also be some relation to tuberculosis. A marked tuberculous skin reaction will frequently aggravate the pain, the splenic enlargement, the jaundice and the hemolysis. Pneumonia, typhoid fever and gastro-intestinal infections of various kinds, as well as rheumatoid arthritis, seem to be associated with the disease. It may also occur in cases of ankylostomiasis and ascaridiasis. The hemolytic activity of the spleen may be increased through any accidental infection.

We find that there is a characteristic anatomic condition in acquired hemolytic jaundice, and the good results following splenectomy offer a safe pathogenic basis. The globular fragility is a cardinal objective symptom in this disease, and therefore ex-

amination of the red blood-corpuscles, resistance is most important.

The blood picture in hemolytic jaundice resembles that of pernicious anemia. We have in pernicious anemia the same morphological blood condition and the same defective osmotic resistance of the erythrocytes, as well as the same condition of the spleen, as in hemolytic anemia. The enlarged spleen, with diminished resistance of the erythrocytes, shows histologically in acquired hemolytic jaundice. The boundary line between pernicious anemia and hemolytic jaundice cannot be sharply drawn. The differential diagnosis is difficult and often impossible. Weber reports a case of acquired chronic hemolytic jaundice which he first saw fifteen years ago with a blood-picture then resembling that of pernicious anemia. There is a marked increase in the percentage of reticulated red cells in both congenital and acquired hemolytic jaundice, which is not the case in pernicious anemia. Chronic malaria which is marked by splenic tumor, anemia and jaundice, is occasionally mistaken for hemolytic jaundice.

Every method of treatment should take into account the etiologic factors. We find that in some cases of hemolytic jaundice, tuberculosis is an etiologic factor; the treatment should accordingly deal with the basic trouble. The same principle applies when syphilis plays an etiologic role. It is also obvious that in cases of hookworm and other intestinal parasites the treatment must be related to the etiology. The internal treatment of hemolytic jaundice is directed to the condition of the blood-iron, arsenic, climatic changes, and regulation of the intestinal function. Colloidal silver is beneficial in some cases.

Surgical intervention is, in a certain sense, etiologic therapy. The operation of splenectomy is usually successful in bringing about recovery. The immediate effect of splenectomy is quite marked, and recovery is prompt. If, however, the entire pathologic reticulo-endothelial process has not been removed with the spleen, a recurrence of the disease takes place. Splenectomy is indicated only after every internal means has failed and when other means are no longer useful, or acute conditions demand instant attention which may be directly life-saving. The application of the Roentgen-ray to the spleen may be of great benefit in hemolytic jaundice. Its use in this disease is a question of technique. Properly done, though a relapse should occur, this may be only transient and obliteration of the parenchyma ensue, with effects not unlike those of splenectomy. In this way by an improved technique the surgical operation may be avoided.

Wilkie says that in the congenital and familial forms of hemolytic jaundice surgery is seldom indicated, as the patients may lead normal lives and live to a good age. He states that splenectomy is advised only when the jaundice is of the acquired form. This statement does not coincide with the findings of Hatteson, who reports the history of the Roschmann family. The father and six of the members of his family had hemolytic jaundice, which was arrested completely in all by splenectomy. Recent reexamination of this family showed that eleven of the twenty-six members of three generations of the family presented the familial taint. The splenectomy in the mother did not prevent the development of hemolytic jaundice in the child born nine years later. Hemolytic jaundice can be transmitted by either sex to either sex. The results of splenectomy point to the spleen as the organ responsible for the hemolytic tendency and indirectly for the jaundice. The splenectomy removes at one stroke the greater part of the reticulo-endothelial apparatus.

DISCUSSION

DR. L. M. WARFIELD, Ann Arbor: This question of Hemolytic Jaundice has always been a tremendously interesting one to me. We divided them into hepatogenous and hematogenous. We also find bilirubin in the blood stream in hepatogenous jaundice and yet in the former there is bilirubin in the urine and in the latter there is not. Of course the explanation is in the hematogenous jaundice the bilirubin does not go through to the urine. In one form it does get into the urine. It is a very interesting and very peculiar thing.

I think one of the recent and also very interesting observations made is that bile pigment is not made in the liver at all. The bile pigment is selected by the liver cells but bile is made wherever there are these reticular cells, and that is all over the body.

It is interesting that the fragility of the red blood cells is very apt to be markedly decreased. That is to say, that whereas cells would go to pieces, would hemolyze at from 5/10 per cent to 42/100 per cent, after splenectomy the cells would not hemolyze at 3/10 per cent. And yet, shortly afterwards, the cells come back to their original fragility. It does not seem permanently to interfere with the fragility of the red cells, which the doctor has rigidly said is one pathognomonic sign of the disease.

All the cases I have had have had splenectomy and, so far as I know, my longest case is ten years and she is perfectly well. I was rather surprised to hear him say one should be careful about splenectomy. I always heard that these cases of large spleen should not be ruthlessly destroyed by the surgeon, but I feel that splenectomy is really the operation indicated and that surgery here is the treatment and not medicine.

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OBSTETRICAL ANALGESIA AND ANESTHESIA—AN EVALUATION OF VARIOUS METHODS*

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A satisfactory relief of pain in labor is usually possible. It requires a careful study of the individual case and the adaptation of various methods to the needs of the woman during the three stages of labor. Standardization is desirable, but impracticable except in so far as a general plan may be followed. Here as in other surgical work, teamwork is essential to success.

Labor always varies to some extent. Normally there should be little or no pain until near the end of the first stage, and therefore, these is no occasion for the use of any anesthetic agent. But a considerable percentage of women suffer real pain during the period of cervical dilation and relief means hypodermic medication. The dosage must vary with the type and frequency of the pains. Heroin Grs. 1/12 or morphine Grs. 1/6 and hyoscin Grs. 1/100 is prepared in the syringe. If early in labor with pain moderate and contractions short, only half of the dose is injected, the rest being given when needed. A severe labor requires the full dose and must occasionally be supplemented by an inhalation anesthetic.

We have used this type of hypodermic medication in over 200 deliveries without observing any of the untoward effects on the patient sometimes charged to small doses of hyoscin. In a small percentage of cases some difficulty in resuscitation was noted, but these babies had been subjected to considerable birth pressure and had shown circulatory signs of asphyxiation before birth. With the exception of one case with premature separation of the placenta a living baby has been obtained in every case where hypodermic medication was used during the first stage of labor.

Inhalation anesthetics may be administered intermittently for long periods of time. One of us has on several occasions used nitrous oxid for as long as fifteen hours. Protheroe Smith used chloroform analgesia for as long as twenty-eight and one-half hours and Simpson gave it in at least one case more than thirteen hours. Never-the-less, it is our present practice to avoid inhalation anesthetics in so far as possible during the first stage of labor.

Recognizing that the combination of an opiate with hyoscin may interfere with respiratory efforts we aim to avoid the use of hypodermic medication within the last three hours of labor. It is our impression that morphine is more apt to cause trouble, hence the choice of heroin.

Late in the first stage or early in the second stage of labor the patient is taken to the delivery room and an inhalation anesthetic started. Nitrous oxide-oxygen analgesia is usually employed. Ether is added to the mixture when indicated by protracted or too frequent contractions. In case of a tetanic labor ether is the anesthetic of choice.. It shortens the duration of the contraction and increases the interval, thereby lessening the possibility of fetal asphyxia. Ethlyene-oxygen possesses many of the relaxing virtues of ether and may be used during this type of labor. We have eliminated chloroform from our list of obstetrical anesthetics for reasons stated in other papers.

The technic of administering an obstetrical analgesic is simple—being based on the principle of "beating the pain to it." A sufficient quantity of gas or ether must be inhaled early in the contraction to produce analgesia or the patient will experience pain and carry the memory of it even though she is anesthetised during the latter part of the contraction. Success or failure in administering an obstetrical analgesia hinges on an appreciation of this point. Many expert surgical anesthetists are complete failures in a delivery room through their deliberate movements. The patient should get the anesthetic with the first inspiration after a contraction starts. It should be continued for a sufficient number of inhalations to relieve the pain of that contraction. The number varies with the individual susceptability and the type and duration of the contraction, as well as the anesthetic employed.

*Read before Section on Gynecology, M. S. M. S., Mount Clemens, Sept., 1924.

Nitrous oxide produces a quick result and is soon eliminated. Ether tends to accumulate in the blood and when used for several minutes has a more lasting analgesia. Eehylene is more powerful than nitrous oxide and fewer inhalations are required when it is used. In a limited experience it has seemed to us that this new gas acts much like ether in its tendency to shorten the contraction and lengthen the interval.

The anesthetic is administered continuously during the delivery of the head. The patient should be unconscious at this time. Expulsive efforts are replaced by Kristellar maneuvere, pressure on the fundus. As soon as the head is delivered the patient is given pure oxygen and this is continued until the cord is tied.

Perineal repair may be accomplished satisfactorily with any of the inhalation anesthetics. There is no objection to the use of ether at this time if pituitrin is used to contract the uterus. It is generally recognized that the uterine relaxation obtained when ether is administered increases the loss of blood. Conservation of blood during a delivery lessens the chance of sepsis and undoubtedly makes a smoother puerperium.

Nitrous oxide and oxygen may be administered for all operative deliveries with the exception of version. During a version complete relaxation is essential to safety and ethylene oxygen or ether is required. The ether may be given in combination with either of the gases. For many forcep deliveries we administer the gas intermittently just as with normal labor and have the patient bear down when traction is made on the forceps. During the past five years we have delivered with forceps over 200 private patients without the loss of a single baby during birth. In two consultation cases seen late in labor the babies did not survive. One had a moderate hydrocephalus and the other should have been delivered early by Caesarean section. No baby was seriously injured and only two died during the early weeks of life. One of these was prematurely delivered after vaginal hysterotomy for partial separation of the placenta and the other had hemorrhagic disease. Possibly forceps delivery was a contributing factor in the latter case.

Success in the use of forceps is dependent largely on the use of the instruments to guide the head rather than pull it. We never aim to use more than a few pounds traction, and try to accomplish the delivery through Kristellar pressure and the expulsive efforts of the patient. We believe that a gas is more adaptable to this technic than ether because of the rapidity with which the depth of analgesia or anesthesia may be varied.

Ethylene is still in the experimental stage. Its explosibility appears to be its main limitation. It is being used successfully on the obstetrical service at the Presbyterian Hospital and from their experience it would appear to be better than nitrous oxid as an obstetrical analgesic. A quicker result is obtained and the analgesia persists longer. Fewer inhalations are required and therefore the anesthetist will less often fail through slow administration.

Our experience with ethylene in obstetrics has been limited to a few cases, and these did not lead us to believe it superior to nitrous oxide for obstetrical analgesia. However, we have attempted to evaluate this new gas anesthetic by repeating with it some of the animal experiments performed in 1917 by one of us in which chloroform-air, chloroform oxygen, ether-air, and nitrous oxide-oxygen were administered to groups of pregnant and non-pregnant animals. The same anesthetic chamber was used and other conditions were similar. The results are briefly as follows:

1. Eleven guinea pigs and three rabbits were anesthetised for periods varying from one to five hours.

2. An even anesthesia is more easily obtained with ethylene-oxygen than with nitrous oxide-oxygen.

3. No animal in either group went bad during the anesthetic. This is a common occurrence during attempts to keep a group of guinea pigs or rabbits under moderately deep nitrous oxide-oxygen anesthesia and an occasional animal will suddenly die.

4. It is apparently possible to asphyxiate the young in utero by giving too small a percentage of oxygen with ethylene. This is constantly true with prolonged deep nitrous oxid-oxygen anesthesia. The advantage here is with ethylene since anesthesia may be obtained without reducing oxygen below 20 per cent.

5. Tissue changes following ethylene are suggestive of slight cell edema. No evidence of fatty changes or cell destruction were found.

So far as it is possible to judge from a comparison of animal experiments with these four inhalation anesthetics ethylene-oxygen would be the most desirable for use during pregnancy or labor. Owing to the possible risk from explosions we have not used it during the past six months. We believe that with precautions being introduced

that the risk of ethylene explosions may be reduced to that of combinations containing ether and oxygen. If this is accomplished ethylene may in time supplant nitrous oxid in the delivery room as well as it will ether for major surgery.

CONCLUSIONS

1. Hypodermic medication is indicated for a painful first stage of labor. Heroin Grs. 1/12 or morphine Grs. 1/6 and hyoscin Grs. 1/100 is the usual dose, this being administered in two parts if the pain is not severe. A long first stage requires additional hypodermics.

2. Nitrous oxid-oxygen is still the analgesic of choice during the second stage of normal. A tetanic labor requires a more powerful anesthetic and ether is used. Ethylene-oxygen in smaller amounts may be used in place of nitrous oxide-oxygen, its explosibility being the main objection.

3. A patient must receive enough anesthetic to produce analgesia before a given contraction reaches the painful phase. This requires very prompt administration after the first suggestion of an approaching contraction. Failure to relieve pain is more the fault of the anesthetist than the anesthetic.

4. Each case must be individualized. Adapt the anesthetic to the patient's needs at different stages of labor. Version requires complete relaxation. Forceps delivery may be accomplished with analgesia or light anesthesia.

5. Anesthesia may contribute to fetal asphyxiation but birth pressure is to a much greater extent responsible. Sudden or marked changes in the fetal heart rate should serve as a warning. The fetal heart should be taken every few minutes during the perineal portion of labor and evidence of fetal asphyxia should lead to a prompt delivery.

6. Women are now expecting to suffer little or none during labor and as a result are much harder to please than those delivered ten or more years ago. Pain relief has relieved hospitals from the undesirable noise of obstetrical patients, and has made childbirth a less hideous procedure. The future will bring even more satisfactory methods.

DISCUSSION

DR. H. A. PEARSE, Detroit—In our service at Harper Hospital we have not been able with nitrous-oxid anesthesia to obtain the relaxation referred to in the paper. We do not have a regularly appointed anesthetist, the anesthetic being administered by different persons. In the few cases in which we have used the ethylene-oxygen anesthesia the relaxation is very good and we have noted the results mentioned by the authors of the paper. With nitrous oxid-oxygen anesthesia we have been unable to repair perineums and have the patient well relaxed. Whether this is due to the anesthetist or not I am unable to say.

As to the results obtained under ether anesthesia, the men working in the clinic seem to like ether better than either of the gases. Ether given early in the contraction will relieve the pain and the patient's expulsive efforts are practically unaffected.

Ethylene-oxygen anesthesia has given very good results. With it we have been able to repair an episiotomy due to forceps delivery with practical ease . We have been unable to do that with the patient under nitrous oxid-oxygen anesthesia.

DR. A. E. CATHERWOOD, Detroit—I have practically had Dr. Pearse's experience. So many times in delivering primipara, on whom we do episiotomy in such a large per centage of cases, I have been unable to obtain proper relaxation for perineal repair with nitrous oxid and oxygen. While I have had ethylene administered on only a few occasions, I have had excellent results in those cases. I do not like nitrous oxid in those cases in which we are going to do perineal repair following episiotomy, because I refuse to chase the patient all over the room in order to put in a few sutures.

DR. F. K. LENFESTEY, Mt. Clemens—I wish to speak from this viewpoint: "What are we going to do with anesthetics in the home?" I must say that I am ignorant, probably not following the literature, but what is Dr. Cron's particular objection to chloroform anesthesia? I have used it exclusively and have yet to see poor results. We cannot take all our patients to the hospital. What are we going to do in the home? Very often in the country we do not have the assistance that is available in the hospital.

DR. G. VAN AMBER BROWN, Detroit—I have been making an extensive study of the pathology of the fetus, paying particular attention to the kidneys, and in doing this work I ran upon a very interesting pair of twins that were delivered by Caesarean section. They lived only a few minutes after they were born. One of these fetuses was a little scrawny, illy nourished boy. The other was a bulky fetus of less than six months, and very edomatous, the face, arms and legs intensely swollen. We were at a loss to know why one child was so illy nourished and the other so well developed and having this edema. On making a study of that case we found that we were dealing with an imperforate urethra, which proved to be true not only macroscopically, but microscopically. There was fluid in the bladder, the uterus and kidneys were dilated with fluid. With a hypodermic we extracted the fluid from the bladder and found upon laboratory study that it had all the characteristics of urine. And this child had died from retention of its own urinary products. This was a little link in the chain to show that quite early in fetal life the kidneys do function. Then we conceived the idea that we would like to know how much the kidneys functioned, how well they worked, what dyes, if any, they would carry, etc. So we administered several dyes to mothers in order to determine, if possible, whether or not we could obtain the dyes in the urine. While carrying out this experiment I met the head of the obstetrics department in the largest lying-in hospital in Detroit and talked with him, and he never believed in giving atropin or hyoscin while the mother was in labor because it might kill the baby. I then talked with the head of the obstetrical department of another hospital, and he stated that he never used morphin, but always hyoscin, and that they had never had any trouble. We took

women either in labor or two or three days before labor and tried them out with indigo carmin, then observed the babies during a period of from 24 to 48 hours, and never could we obtain the least evidence that any of the dye had reached the infant. We then tried other dyes, with the same results. Finally a woman came along who for seventeen years had been a morphin addict and still ate about 20 grains a day, and we wondered what kind of an infant we would get. She gave birth to a baby weighing six pounds, active and healthy. She continued with the use of morphin, the baby was put to the breast, went into a stupor and died. It got morphin from the breast of the mother, but did not get it through the circulation of the blood. I have taken time to relate this case at some length in order to illustrate that we do not need to be afraid of morphin or hyoscin or atrophin being carried to the child by giving hypodermics to the mother while in labor.

I wish to defend the use of chloroform. It takes a midplace between ether, the anesthesia from which is too prolonged, and the gases, which are too transitory in their effect, and we can easily put the patient under the influence of chloroform. If we use our intelligence to help us while she is in labor she is more rapidly brought to consciousness, you can get all the relaxation you want, and, whatever accidents you may have in surgical anesthesia, those events do not occur in obstetrics. We do not get heart failure. Last week in Buffalo I attended the Clinic of Potter, who uses chloroform entirely whether in the hospital or home. Last week he delivered forty women, he uses chloroform and has had but one death which anybody could possibly attribute to the use of the anesthetic, and even that he thinks was not due to the chloroform.

DR. L. W. HAYNES, Detroit—I agree with Dr. Cron as to chloroform. I think it has no place in obstetrics. I have used it, and did use it for many years when I was doing a lot of obstetrics in the home, and there is no doubt but that it is an easy anesthesia to employ. But, unfortunately, I ran up against a case of death from chloroform. Many others have had the same experience, and after you have seen a patient die under chloroform I think you will eliminate it and try something else.

Regarding ether, I started using it when I gave up chloroform and I believe it is just as easy to handle in an obstetrical case as chloroform. You do not get as quick result, but if you start at the proper time and work it out you will find that it will take care of the contractions just as well, and it is safe to give.

Relative to the newer anesthesias, although I deliver practically all my cases in the hospital where we have trained anesthetists, and although I have tried out nitrous oxid and the ethylene-oxygen, I must say I have not been very well pleased with any of them. Those of you who were at the meeting two years ago and heard Dr. Shannon, who was our chief anesthetist at Harvard, must have felt as though you would give up all the rest and start using nitrous oxid, and I believe I should feel that way if I could have Dr. Shannon give all my anesthetics. Personally, I believe that the old reliable ether is hard to beat.

DR. E. WILBUR CASTER, Detroit—I want to emphasize the statement that one trouble is in the anesthetist rather than in the anesthetic. I think the way the anesthetic is given makes all the difference between a good and a poor anesthesia. About eight years ago my sister, who had been a school teacher, took a course in anesthetics. I think without any exception she was the best anesthetist I ever had experience with, and a number of doctors said the same. She was with me for some time giving anesthetics, and particularly in obstetrics. And my experience was that if nitrous oxid and oxygen is used as it should be it is an excellent anesthetic. Unfortunately my sister died, and I never could get anybody to take her place.

It has been my custom to give pure nitrous oxid. It is not my intention to use any oxygen more than once in a dozen cases. If we administer it early, it is a wonderful thing. Sometimes you cannot get the patient to consent to this, when it does not work out so successfully, but almost to the point of delivery it is a wonderful anesthetic even in the hands of an inexperienced person. I find that it does not take away the pain during delivery as well as it would if I had a trained anesthetist because I do not dare allow the patient to take as much. In the hands of an experienced person I think it would be a wonderful thing. It is a great help in the house delivery of patients.

DR. G. G. HICKS, Jackson—In regard to the effect of chloroform and ether on pituitrin, I believe it puts the grips on it very effectively. In giving pituitrin I always use chloroform. The manufacturers claimed that I did not get the action of the drug as well as did some surgeons. They told me to use about half the strength and I need not be afraid of it. I find that the effect of pituitrin is gone within thirty minutes. It works very effectively.

DR. CRON—Just one point in closing. Chloroform should have no place in obstetrics because of the dangers associated with it. For instance, when chloroform was given to pregnant guinea-pigs it was found that the liver cells of the young were absolutely destroyed and were replaced by fat. It is entirely different with ether or ethylene or nitrous oxid. With those gases the only change in the cell is slight cell edema, which will always repair itself. I have sections of liver taken from women who died from chloroform poisoning, which show the same marked fatty destruction.

In regard to Dr. Catherwood's remark as to the value of nitrous oxid in doing episiotomy repair, we have used with this anesthetic about two per cent of ether. The ether container is attached to the Clark or any other of the gas machines so that the ether can be added to the gas. That is the agent which induces relaxation. There are a few experienced anesthetists who are able to get fairly good relaxation from nitrous oxid, but they have to be well trained.

It is my opinion that the action of pituitrin is not influenced by the anesthetic. It is our rule, whether ether, ethylene or nitrous oxid is used, to administer pituitrin to the mother immediately after birth of the child, giving about one-half c.c. of the obstetrical pituitrin. In the vast majority of cases pituitrin definitely reduces the amount of blood loss during the third stage of labor.

ADVANCED CANCER OF THE CERVIX TREATED WITH HEAT AND "STARVATION LIGATURE"*

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Heat is a primary and fundamentally selective antagonist of the cancer cell. Carcinoma is more vulnerable to the application of heat than to any other known agent. It is a "time

*Read before the Gynecological Section of the 104th (59) Annual Meeting of the Michigan State Medical Society, at Mount Clemens, Mich., Sept. 9-10-11, 1924.

immemorial fact," that high degrees of heat retard malignant growths on the surface of the body. Five hundred years ago, Guy de Cheulic, the most highly educated surgeon of his time, though he used the knife in cutting out cancer at an early stage, recommended and used in growths, particularly of the fungus type, the actual cautery. The electro-cautery introduced by Middledorpf, was then considered by many surgeons preferable to any other method in the treatment of cancer of the cervix, it was later adopted by John Byrne, and finally came to be known as the "Byrne," method. He reported over 60 per cent of his cases alive and well beyond the five year period, and no one has ever called in question the correctness of his statistics.

In recent years G. Betton-Massey commenting upon the work of Dr. Byrne says, he is too little known as a member of the Royal Chirurgical Society of Edinboro, former president of the American Gynecological Society, and author of the section on Electro-thermal surgery in the Bigelow-Massey International System of Electro-therapeutics, and adds, "It is a sad comment on contemporary surgery, and its tendency to a blind adherance to prevailing fashions, that the radical teachings of this forceful man were absolutely neglected during his life."

One difficulty with heat in the treatment of cancer has always been a lack in knowledge of how most effectively to obtain from its employment the maximum benefits. At present there are two methods by which heat can be applied effectively to cancer invaded tissues; one, the cautery, the more familiar procedures with which are the basis for whatever recognition it has received in the past in the treatment of this disease, the other is the method under discussion in this paper, the continuous application of low degrees of heat, temperature to be continued for hours or days at a point less than required to produce actual cauterization of tissues. It is particularly applicable to treatment of carcinoma of the cervix. The heat should be so applied as to be destructive only in a minimum degree to normal tissues, acting in the greatest measure as a destroyer of cancer cells in any portion of the birth tract. So applied its advantages over radium and X-ray are its simplicity, its freedom from danger as well as the comparative cheapness of the apparatus and its ease of application. Its use is not followed with radiation sickness, and I have had cases with the uterus absolutely fixed in the pelvis, in which at the end of one heat treatment the uterus was rendered movable; thus changing immediately a mechanically inoperable condition into an operable one. Whereas the radiation sickness which follows X-ray or radium, delays operation, lowers the patient's general resistance to the disease and is rapidly followed by new connective tissue formation in the parametrium with decreasing mobility of the uterus, thus increasing mechanically operative difficulties.

Radium, X-ray, d'Arsonval current, and heat, all have a selective action for neoplastic cells, and when they are exposed for a sufficient extent to any of these agents, are destroyed. The degree necessary for destruction of a new growth by any one of the first three; however, more nearly approaches the lethal point of healthy cells and consequently adjacent normal tissue is injured to a much greater extent than when heat alone is used. Heat applied for ten minutes at a temperature of 113 F. destroys cancer cells, while normal tissue cells can stand a temperature of from 131 to 140 F. without being devitalized. (Doyen also Percy). Furthermore, heat is disseminated by conduction rather than by radiation, the penetration is a rather slow process, and is therefore absolutely controllable. This linked with the fact that the thermal resistance points of normal and malignant cells, are much further separated than with other agents, X-ray and radium, makes heat the logical choice. Too, the progressive anemia that follows the use of large doses of X-rays is not encountered. Neither are the stubborn burns produced which at times follow X-ray and radium treatment, these to be dealt with later, to the great annoyance of all concerned, to say nothing of other complications excited by X-ray and radium; such as disturbance in the digestive tract, adrenal balance, etc.

STARVATION LIGATURE

The heat treatment can be to a great advantage to the patient supplemented by the employment of the "Starvation ligature." It is not known who first employed this method; but ligation of vessels for control of hemorrhage is mentioned in the writing of Celsus (30 B. C. to 50 A. D.), and of Galen (131 to 211 A. D.). The ligation of arteries is said to have been practiced at least 1800 years before Harvey discovered the circulation of the blood (1616 to 1619). With the discovery of the circulation and the development of knowledge concerning a part played by the blood in the nourishment of normal as well as abnormal tissue, the method of ligating arteries increased in scope. It then came to be applied not only for the control of hemorrhage, but for the purpose of causing atrophy of organs or other parts of the body, and to lessen the nutrition of inoperable new growths, thus checking their further development and often causing their disappearance. The

last named use of the ligature has given rise to the term, "Starvation ligature. It has been said that John Muys, in 1626, recommended the starvation method of arterial ligature. However, the discoverer of the circulation of the blood is credited with originating this method, which procedure he used in 1651, when he is said to have treated succesfully a case of elephantiasis of the scrotum and testicle by ligating the spermatic artery. It is recorded that in 1707, Lange employed it in the treatment of goitre. A hundred years elapsed before the method was again employed, when in 1809, Travers employed it in a tumor of the orbit. Since then its field of usefulness has been gradually extended, so that the procedure has been applied to the tongue, thyroid glands, buttocks, prostate, testes, ovaries, uterus and other parts of the body.

During the latter part of the last century Dr. John A. Wyeth of New York, reported 789 cases of ligation of the common carotid, of which 95 were for malignant tumors of the orbit, and 91 cases of the external carotid alone were tied to relieve or cure, so-called malignant growths. Although this procedure was used about the same time by many others, both in this country and Europe, it was not until the appearance of an essay by Samuel D. Gross, "The Treatment of Certain Malignant Growth by Excision of the External Carotid," that the starvation ligature became the modified "Starvation treatment." In cancer of the cervix Fritsch was the first to use tying of the utering arteries. In 1888, Baumgarten was the first to use it in inoperable cancer of the uterus. H. A. Kelly in 1893, was the first to ligate the internal iliac, which was done in an emergency on account of a violent hemorrhage that occurred during the operation. Afterwards it was used by him as a method of choice, as also done by Pozzi and many others. Later, Bainbridge from seven years experience, reported in 1915, 48 cases of ligation of the internal iliac, medico-sacral, and ovarian arteries for malignant disease of the uterus. He has now treated over two hundred cases by this method which he believes gives, all things considered, results superior to any other treatment known to the medical profession today. Recent inquiry shows that the "Starvation ligature," is at present being used by a number of the leading surgeons and gynecologists of this country, and that it is today an established procedure in the treatment of advanced cancer of the uterus. It consists of ligation of the internal iliacs, the ovarians, and where deemed necessary the medio-sacral arteries. The ligation is applied to lessen the nutrition of inoperable new growth, thus checking and often causing their disappearance. The use of the "Starvation ligature," mechanically accomplishes instantly in the blood supply what a study of a microscopic specimen of carcinoma shows nature is endeavoring to accomplish. Immediately upon ligation of the above named arteries, one can observe definite blanching of the uterus and its adjacent structures.

TECHNIC

As previously conducted in our work the patient is prepared for a combined vaginal and abdominal section, the legs being elevated to secure the ordinary perineal posture, while the table is set in the Trendelburg position. The abdomen is first opened and the pelvis explored. The intestines are thoroughly packed away. The two internal iliac arteries are doubly ligated and the vessels crushed between the ligatures, the ovarian arteries with the sacromedia are also tied. The tubes and ovaries are removed when consent is given.

While the abdomen is being opened, the vagina is being dilated by a second operator and the water cooled speculum inserted. The speculum should be used only when the vagina is sufficiently relaxed to admit the speculum without injuring the mucous membrance. The electric heating iron devised by Dr. James F. Percy, consisting chiefly of several electric heating irons with an assortment of tips, and applied through the speculum, is next adjusted using the tip most suitable for reaching the diseased area of the particular case. The two operators now work together. The abdominal operator can by holding the uterus give directions as to how far the heating iron may be inserted, and by downward pressure place the uterus in a more convenient position for applying the heat. The iron is kept at a comparatively low temperature. The tissues should not be charred, for once char is formed, it prevents the penetration of heat into the surrounding tissues. Such a carbon core checks drainage and causes unnecessary absorption of toxins. The iron tip should be carried to the fundus and held there until all tissues fixed but normally movable are rendered freely movable, requiring from 40 to 120 minutes. The heat is controlled by a rheostat. There is no shock following this operation; on the contrary the patient leaves the operating room with pink cheeks and slow, full, strong, regular

pulse. Recently this heating device has been improved by Percy, who has succeeded in developing a thermogenic tube which can be used in the home or the hospital. It is made in several sizes and is inserted as is the radium capsule. It can be retained in the vagina for days if desired. Its application is started at a temperature of 110F. for first 18 to 24 hours, adding 5 degrees F. each subsequent 18 or 24 hours until a temperature of 130 F. or more is reached.

The temperature is read by placing a long laboratory thermometer beside the heating tube. With the thermogenic tube at this temperature, the cooling jacket or speculum is not required. Patients tolerate this well. The longer these patients are able to retain the tube, the more quickly are results obtained. Patients will tolerate 130 F. some of them much more, even in a malignant mass in the rectum. It is perfectly marvelous how an obstructed malignant rectum opens up under the influence of such a continuous temperature, even when a colostomy is seemingly the only thing possible for relief. We have such a case under observation now.

One important factor is that normal living human tissues rapidly acquire a remarkable immunity to increasing therapeutic degrees of heat. This appears never to be true of the low grade cell. Since the malignant cells are five times more vulnerable to heat than normal cells it is therefore not hard to see that in cutting down the blood supply by ligature, still further lessening it by sealing the smaller vessels with heat, and also, through the heat producing an increase of connective tissue which further protects against the ingress of the malignant cells we may destroy them, and yet have sufficient collateral circulation maintained to nourish the normal cells. Then too, if not supplemented by the "Starvation ligature," radiotherapy often fails to destroy malignant cells whose nests are in or near the large three coated blood vessels from which they draw sufficient nourishment to withstand its effect. Again, the "starvation ligature" so slows the blood stream that the cooling effect, which it normally has is destroyed, thus enhancing the value of the heat treatment because the cancer cells in the arterial wall are now just as vulnerable of the heat treatment as cells located elsewhere. Five years ago, I first employed this method of treating advanced cancer of the uterus; using heat as above described, combined with the "Starvation ligature," also removing any enlarged post perintoneal lymph glands found between the receptaculum chyli and obturator foramen. In accordance with Beatson's theory of the presumptive influence of ovarian irritation upon cancer growth, the tubes and ovaries are removed when consent is obtained. A further advantage in double cophorectomy and salpingectomy is the extension of the area of lymphatic block. Another advantage in the use of heat in conjunction with "Starvation ligature" over X-ray and radium is that in young women, where the patient so demands, the menstrual cycle can be preserved. Whereas, when X-ray or radium is employed, the patient is sterilized and the menses cease. A case in point:

CASE REPORT

Case No. 632-C. Housewife, age 28, weight 165 pounds, nullipara, denies ever having been pregnant, and has never been ill. Cause for consultation: First noticed bleeding five years ago. It is accompanied by pain. At first patient noticed a spot of blood on clothing, only occasionally, three or four times a month, with some discharge before her period. This had gradually progressed. About a month ago she took a great deal of exercise, walking, climbing hills, and bathing daily, which seemed to make her bleeding worse. She has worn napkins daily for the past month. For the last two months, she has had a yellowish discharge, mixed with blood and pus attended by a foul odor. Vaginal examination reveals an extensive fungus mass bleeding readily. Clinical diagnosis by pathologist, from currettings: Medullary basal celled type of carcinoma of the cervix uteri, actively growing. Consultation: Diagnosis concurred in and advised by consultant to abstain from operation as case is hopeless. Operation, August 16, 1920. Heat, by Percy method was employed, coupled with ligation of both iliacs and both ovarions. Patient left hospital during third week after an uneventful recovery. Though no bleeding ever occurred after this operation, there was a small area about the cervical canal which was slow in clearing up. One radium treatment promptly disposed of this. I saw her recently in my office. She is perfectly well, weighs 190 pounds, having gained 25 pounds since the operation. The cervix is healthy and she menstruates normally three days in each month.

The heat and starvation ligature treatment is particularly indicated in that unfortunately large number of so called inoperable and incurable cases of cancer of the uterus where there is an extension of induration into the vaginal or rectal wall or both, the uterus fixed and often a sloughing, bleeding, putrid mass stretching and filling the vagina.

The advantages of the method:

(1) Controlling hemorrhage. (a) Immediate. (b) Remote.

(2) Checking extension of malignant growth.

(3) Mitigating physical pain and mental suffering.

(4) Diminishing absorption of poisonous products.

(5) Facilitating the discharge of pus and necrotic tissue.

(6) Permitting the application of other surgical and non-surgical measures.

(7) Giving a psychic adjuvant to the physical measures employed.

(8) Preserving the menstrual cycle in young women when desired.

(9) As a preliminary to any form of treatment of cancer of the uterus; whether X-ray or radium or a contemplated panhysterectomy.

This leads me to repeat that the use of heat and starvation ligature should precede a contemplated panhysterectomy: and to add, that while I do not want to be misunderstood as decrying the use of X-ray and radium in the treatment of advanced carcinoma of the cervix as useful postoperative adjuvants, they should, however, never in my opinion be used as preoperative measures, and if X-ray or radium is to be employed in preference to heat, their value will be enhanced by antedating the procedure by the use of the "Starvation ligature."

RESULTS

Wm. P. Graves of Boston says, "As regards the value of combining the heat with the starvation ligature method it has been extensively tried out in this country, and though opinions vary considerably, the most valuable evidence is in its favor. The most complete report on the use of the method has been made by Smith, who records 100 cases treated at the Mayo Clinic Of these it was possible later to perform a radical extirpation of the uterus in 26 cases; the time chosen for the hysterectomy being about four weeks after the heat treatment. In 19 of the 26 cases operated on, no carcinoma was found in the specimen removed at the final operation. Smith's results compare favorably with, if they do not surpass, the best results from the use of radium in the same class of cases."

Our own results are briefly given here from a series of twenty cases. The youngest was 28, the oldest 56, with an average age of 43. There was no immediate mortality. Of these, every one showed improvement locally. One died later of sepsis. One, on whom ligation was not done, but heat used following incomplete operation, improved locally and in general health, until later, when against our advice radium was employed. This incidentally was immediately followed by extension of the growth. Twelve of the twenty patients, or 60 per cent, are living. Of the twelve cases, all showed improvement both locally and in general health. One has been lost track of, seven died, the time averaging nineteen months. Seven, or 35 per cent, are improved, five, or 25 per cent, are alive and well, with no subjective or objective evidence of return. Of these, the shortest time of apparent cure is two years and four months; the longest, four years and one month with an average of three years and two months.

Before closing, I want to add a word regarding the apparent destruction of the cervix by a malignant growth, and its complete restoration in normal looks and appearance, after the carcinoma was destroyed by heat. In several of my cases where the carcinoma involved the cervix and utero-cervical junction, there has been a complete restoration of the cervix to normal appearance and in at least one of the series, the menstrual cycle was maintained.

Please remember that these patients were submitted to the heat and starvation ligature treatment because, from a clinical standpoint, they were considered otherwise of the utterly inoperable, incurable type. I am more than convinced that over any other form of treatment, it has not only the advantage of a low primary mortality, but in addition a largely increased percentage of lives are greatly prolonged in comfort, with freedom from hemorrhage, exhaustive and offensive discharge, and mental distress. More than this, there is an appreciable number of symptomatic cures extending over a period of years.

Surely, if no permanent cure has been effected, the relief from symptoms and prolongation of life has made this work abundantly worth while.

Finally, the principles that I am trying to reveal are that,

(1) Cancer abhors heat.

(2) By proper ligaturing, cancer can be starved without destroying normal tissues.

(3) By combining the two methods, results will be uniformly better.

(4) If the attending surgeon prefers to employ X-ray or radium rather than heat the value of either will be enhanced by antedating the procedure by the use of the "Starvation ligature."

DISCUSSION

DR. L. W. HAYNES, Detroit: Dr. Brown is certainly to be congratulated upon this series of

cases and the results which he has obtained. So far as discussing the paper from the standpoint of experience with this method is concerned, I am not able to do it. However, as presented by the essayist it sounds very feasible, and for the past several months I have been following the results of his work along this line. I think the majority of us have had more experience with X-ray and radium in treating these cases, and many of us use one of these following the operative procedure. But the method outlined by the essayist would seem to be very feasible, and I have no doubt but that as time goes on and additional cases are reported and more papers on the subject are presented, a larger number of us will be using it.

DR. FRANK SUGGS, Detroit: Several points mentioned by Dr. Brown should be borne in mind. One is as to the vulnerability of cancer tissue to heat, as compared with normal tissue. The great success of this treatment depends upon the vulnerability of cancer cells to heat, these cells being five times as vulnerable as normal tissues. They are also highly vulnerable to starvation, and any of you who for the first time see this operation in process of execution will be surprised how actually blanched the structure is after the internal iliac and the ovarian arteries are tied off. As we remember the anatomy, the uterus is almost entirely supplied with arterial blood by these two vessels. When you tie them you would think the blood supply has been cut off to such a degree that necrosis would immediately develop. As a matter of fact, necrosis does not occur, but you will realize that a cell which has any tendency to be destroyed by the starvation ligature would be destroyed by that ligation.

In regard to the difficulty of the operation, as you know, it is not difficult to ligate the internal iliac or the ovarian artery. Certainly it is not a dangerous procedure and no shock accompanies it. And as a matter of technic in treatment it is also better to open the abdomen in order to insert the hand while heat is being applied through the vagina, when the two processes can go on simultaneously, heat being applied from below by the assistant or by the operator while the ligation is being carried on from above.

Personally we have had very little experience with this technic, but have observed with great interest the work of Dr. Brown along this line. While in Los Angeles last July I went out to the County Hospital to attend the Clinic of Dr. Percy, who first popularized this method. And incidentally I was very much surprised at the enormous cancer clinic that existed in Los Angeles. There were, as I remember, about 500 cases of cancer being treated in this great county institution. There was an enormous number of cases, ward after ward, and I inquired how they managed their cases. The city has appointed a cancer commission to which the cases are referred, this commission being composed of about six eminent surgeons of the city. The cases are distributed by these men among themselves and to others, the choice depending on how, in their opinion, the individual case should be treated. And on going through the wards I observed that perhaps two-thirds of the cases were referred to Dr. Percy. Of course, the therapy employed included treatments other than the application of heat to the uterus. However, all kinds of cases are treated by the heat method. Of course these cases were kept under observation for several months.

Their opinion of the starvation ligature, which they had used quite extensively, was very favorable, and from personal observation I would say that their results justified the use of this procedure. As a rule it is, I believe, a valuable addition to our treatment of advanced cases. Remember, this is a treatment of advanced cases—those in which a large part of the pelvis is filled with the growth and extensive metastases have taken place, and this starvation ligature gets around them and blanches the organs of the entire pelvis, even the bladder. So in advanced cases that seem hopeless, this treatment has proven to be a valuable asset.

DR. WELLINGTON YATES, Detroit: I am always pleased to hear a report from Dr. Brown. We find that whereas we at one time designated the period at the conclusion of which the cure of cancer, after it had been abated, could be said to be effected, at three years, it was later found that this period was not long enough, and we put it at four years, which was not long enough, we put it a five years and that was not long enough, and now it has been put at six years. In other words, after that period there is not a definite recurrence of cancer from the primary focus.

We have all been interested in the development of the heat treatment as brought out by Percy and in his energetic way of handling the subject. He has gone into it in great detail. He is not satisfied with the instruments he is now using and at the preesnt time is developing instruments which have not yet been put into execution.

I have observed with much pleasure some of the cases that Dr. Brown has referred to, in that some of them, or perhaps all of them, have been inoperable cases and they have been made distinctly better by this starvation process. The induration has gone down as he has said, the blanching of the tissues obtains as he has said, and the pelvis becomes very free as he has said. And for inoperable cases you cannot say that any method is not worthy of honest, fair trial. Some of you may have heard the discussion of Dr. Ochsner, in which he stated that up to three years ago he had been operating, in one way or another, all cases of cancer of the uterus. For the last three years he has operated three cases, and several hundred have come to his clinic. He portrayed how he had gone through the progressive states of heat, of ligation, how he had done wide operations, cauterizations, and that he had absolutely become discouraged with the entire operative field, as operative measures are usually termed. In other words, all cutting operations are done away with in his clinic to the exclusion of radium and X-ray. And he has ovserved in these three years (which of course is not sufficiently adequate in time)—much more satisfactory results than those obtained by any other line of treatment that he has adopted. I think it is the general esntiment throughout the gynecological world more and more that cancer of the uterus deserves no cutting operation. In cancer of the uterus in which extensive destruction of the cervix has taken place operative measures only increase the destructive process and hasten the end. Also we should not operate in those cases in which the cancer cells are so localized that radium may reach them with little or no trouble.

I respectfully differ with the opinion of the last speaker that any surgical maneuver on an inoverable patient does not induce shock. These patients are shocked already, they are toxic, they are tired out in tissue and tired out in nerve energy, they cannot stand shock, and any maneuver which opens the abdomen will, without question, cause a considerable amount of shock. Therefore in my own experience of the last three years, during which period we have had a large number of cases of cancer in the receiving hospital, where we get every conceivable kind of case from early development until the death of tissue and consequent ne-

crosis is very extensive, we turn the patints over entirely to the radiologist and the X-ray man. The results are not satisfactory of course, and the question is whether they ever will be satisfactory until we know more about cancer than we do at the present time. I am firmly convinced that cutting operations as far as the uterus is concerned is a past maneuver.

DR. J. H. DEMPSTER, Detroit: I must congratulate Dr. Brown on his paper. Indirectly I keep track of his work through the presentation of his reports before medical meetings, but I have had no very great experience with the X-ray treatment of cancer of the uterus. I have X-rayed a number of cases in a post-operative way, usually those cases that are turned over to the radiologist since deep X-ray therapy has come in vogue.

Regarding the questions involved in the starvation treatment by ligation, as I understand it the physiology of X-ray treatment is practically the same in that raying over the pelvis should obliterate the arteries and finally induce a kind of starvation of the growth; in fact, our object in using the X-ray in these cases is to cut off the blood supply and thereby diminish the growth. Deep X-ray radiation has the effect of actually killing the cancer cells. As stated, I have not had opportunity to follow those cases to the end, but X-ray treatment has inter-actions whereby we induce obliterative endarteritis, effecting the death of the cancer cell itself. I think Dr. Brown's method has produced some very fine results.

DR. ROLAND S. CRON, Milwaukee: It was my privilege during the last year of my association with Dr. Peterson at Ann Arbor to review all cases of cancer treated at the University Clinic from 1902 to 1921. In reviewing the early method of practice I may say that most of the cases were treated by cauterization, and after Dr. Percy method came out it was extensively used at Ann Arbor. In following up those cases, numbering about 320 I think, I was unable to find a single case of advanced carcinoma of the cervix in which the patient was alive and well. There were two patients alive, but on their reappearance at the Clinic it was found that they had extensive involvement following cauterization. Some of the cases were also treated by ligation of the internal iliac artery, but this procedure seemed to have no influence on the advance of the carcinomatous process. The only cures reported from the Clinic at Ann Arbor are those that were treated by the Wertheim operation. Of the entire series of 320 cases, only five per cent of the patients were alive and well five years after operation. The results were so discouraging at the time that they were not published, and only after due consideration and having had experience with other methods of treatment such as radiation in the form of radium and X-ray were the results put in print, and that was done some few months ago. We feel the same as Dr. Park of Philadelphia. Dr. Howard A. Kelly of Baltimore, and others—that there is no operative means for the handling of advanced carcinoma of the cervix. We feel that the reaction following a laparotomy with incision is just as bad as radium sickness after the introduction of radium. With the exception of early cases in which the carcinomatous process is limited to the cervix itself, with no involvement of the vault or other complications, we feel that the best method of treatment is by radium and X-ray.

DR. CHARLES F. KUHN, Detroit: I appreciate the paper of Dr. Brown, as I have been watching his work for some time. About ten years ago I started to utilize the method of using a water cooled speculum or even an ordinary cautery through the cervix so that we could feel the warmth, and I thought we secured some very good results although we did not use the ligation method. Whether or not it is a good thing I do not know, but am sure it is worth trying. Of course, radium and X-ray therapy is accomplishing some things. However, we haven't enough radium to take care of all these cases. The method as given by Dr. Brown makes it possible at ordinary clinics to apply the starvation ligature in inoperable cases. I believe there is a wonderful field for its use and I congratulate Dr. Brown upon his sincere, constant effort to prolong the lives of these inoperable patients.

DR. BROWN (closing): I wish to thank the gentlemen who discussed my paper, both those who stand for and those who are against the things that I stand for.

Ewing says that if you can get at the cancer cell it is an easy thing to upset its balance. But the great problem is to get at the cell. And I think that is about the way we all feel. If we can just get at the cell there are several ways of handling and destroying it, but we have the normal cells standing in the way and many of them have been destroyed already. That is the trouble with both X-ray and radium; the lethal dose for the cancer cell is too near the lethal dose for the normal cell. It is different with heat. The margin of safety here is very broad, so you can travel well out with the heat into the territory occupied by normal cells and not injure them, in fact you even aid the normal cell in its resistance, while you have destroyed the cancer cell. The first case that Percy did, I think about 11 years ago, is alive and well today. Leo Schmitz of Los Angeles did his first case many years ago, and the first six patients on whom he used this method are all alive and well today.

For those who were not present when the paper was read, I think it well worth reviewing some of the points presented.

Byrne, a man whose report nobody would think of questioning, has set forth the results which he obtained from the use of his old crude cautery with its great long handle, where he went into great masses of cancerous growth so large that they distended the upper part of the vagina and cleared them out with the electric cautery at the junction of the cervix and vagina, and reported later, after a period of over five years, that more than 60 per cent of his patients were alive and symptomatically well. You cannot get other statistics that give anything like that result. The Wertheim operation carries an immediate mortality of 20 per cent, and no one dares claim more than 5 per cent cures. That takes in both the early and the late cases.

Now, to stand up and say that we have used cautery treatment in 300 cases is not the thing we are talking about, or that we use the modified Percy technic. It is the Percy technic or it is not the Percy technic. I am not talking about the starvation ligature alone or the heat applications alone—I am discussing the use of the starvation ligature in conjunction with the heat as applied by Percy.

Dr. Yates stated that Percy has not yet completed his instruments and got them just as he wishes. I now have the second or modern instrument of Percy, the little irons are smaller than my little finger, they can be put in the cervix either at home or in the hospital, they are absolutely under control, and you can keep the temperature at the desired point for days and weeks and the patient is little inconvenienced by the treatment.

It is all right for the man who has not tried this method to think that shock may be produced by laparotomy, but I fail to see that the patient has any shock after the abdomen is opened for ligation, the reason is that in applying heat to the uterus

we are giving supportive treatment to that patient al lthe time. Heat is applied to patients before they go to operation, we try to warm them up after they get back to bed, but with this method you are using a temperature of 130 or 140 or even 150 or 155. That helps to support them, and they really do not show shock as result of the operation.

Another thing: Heat is the only method today accomplishing absolutely painless surgery. Several of you can bear me out in this. You can take a woman in the operating room and, without any anesthetic, put the iron into the uterus, start with a temperature of about 110°, and take your time. This is no job for the hurry-up surgeon. It is for the man who can painstakingly handle the instrument, not moving it about haphazard. You can put that iron in there with the heat 110°, increase gradually to 130°. I have more than once increased from this to red heat and burned out the entire uterine canal and the patient would go to sleep while I was doing it.

In conclusion I will read some extracts, taken from papers that have been read by well known authorities, regarding the results obtained by radiation in these cases.

William S. Stone of New York (Surg. Gynec. & Obstet. June 1921) from observation in over 400 cases, says: "On account of lymph node involvement in certain cases of cancer of the cervix radium cannot entirely supplant operation in all such early lesions. A strong plea is made to avoid treatment of primary cases that are too far advanced." He further states that the chief error in the use of radium seems to be an over-dosage, with the subsequent disastrous results to the neighboring tissues.

Bailey, in a recent article, deals with 336 cases. He says that practically all cases that have a complete radiation of the local lesion and the lymphatics and other involved tissues pass through a period of improvement, disappearance of ulceration, lessening or disappearance of discharge, gain in weight and improvement of health are secured in all cases but the advanced conditions. After a longer or shorter time of well being, many of the cases have further development of cancerous tissue behind the vault of the vagina.

Burrows (Annual Reports of the Manchester Radium Institute), states that of 363 cases of carcinoma of the cervix of the uterus that were treated by radium, most of them inoperable, 10 per cent show complete disappearance of symptoms and signs, but at least one-half of the 10 per cent recur within twelve months.

Clark and Keene (Jour. of A. M. A., August 20, 1921), in a list of 312 cases treated with radium, state that in eleven cases which were advanced when treatment was given the patients are dead. Also that irradiation is dangerous immediately before or soon after operation, or when employed in fresh operative fields.

Dr. Yates quoted Dr. Ochsner. From correspondence with Ochsner and also with Percy and Schmitz, I find that they are treating with X-ray and radium only the medium advanced cases. They are not using them in the others. From the alst letter received from Dr. Ochsner I find that he is still advocating the cautery as palliative.

Schmitz, reporting 163 consecutive cases (Jour. of A. M. A., Aug. 20, 1921), says: "Radiation treatment always causes a decided radiation sickness. During this period the patient could not be safely subjected to the additional trauma of a capital surgical procedure. The operation must be postponed for from three to six weeks, during which time the patient will have recovered from the radiation toxemia. If the operation is performed within a few days after radiation the patient, with an alarming frequency, succumbs to sepsis and shock." Should the operation be postponed to a later period the same danger is still present on account of necrosis of tissue in the cervical canal, which cannot be avoided. These factors and the intense connective tissue formation in the parametrium, which renders hemostasis difficult, therefore do not let it appear advisable to resort to pre-operative radiation."

W. P. Graves (Gyn. & Obstet., June, 1921), speaking from his own experience, states: "It may be said that we have not—so far as we know—cured with radium a single case of inoperable cancer of the cervix." And further, in view of his unfavorable experience with radium, and his favorable operative results, of which he gives statistics, he does not feel justified in substituting radium for radical surgery in cases favorable for operation.

John G. Clark (Annals of Surgery, June, 1920), after five years' experience with radium, states that he considers it an adjunct to surgery and that in the certainly operable cases they still advocate a radical operation followed by post-operative radiation. As yet they claim no cures from radium.

As I said once before at a meeting, I feel that those who stand for a cure of carcinoma of the cervix by the use of X-ray or radium, must find themselves in the position that Victor Hugo once found himself when he said, "I stand for a thing that does not exist."

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IMPORTANT FACTORS INFLUENCING THE MEDICAL PRACTICE OF TODAY

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We have witnessed during the past few years decided innovations in the practice of medicine, innovations that promise much for the invalid and probably more for the general public in the avoidance of unnecessary illness. Only a few

*Read before Section on Medicine, M. S. M. S., Mt. Clemens, Sept., 1924.

years ago the family doctor who announced himself as physician and surgeon was in most cases the only medical authority consulted from birth until death. Gradually the idea that the family physician was not able to cover the entire field of medicine, began to impress the profession. Physicians began to limit their practice first to internal medicine or surgery, later more specifically to disease of the eye, ear, nose and throat, obstetrics or gynecology, skin disease, etc., until it is rare today to find a physician attempting in his practice to cover the whole field of medicine. This tendency on the part of so many in the profession to specialize along more limited lines, is a decided factor in moulding medical practice along new lines. It has resulted in a threatened extinction of the old type of family physician. Whether this is to be advantageous to the public is an undecided question. There are those both in and outside the profession who believe that this is unfortunate and that it is in a measure responsible for the rapid increase of the irregular practitioner.

It is argued that medical service as rendered by a group of specialists incurs an expense beyond the means of the man of moderate circumstances. On the other hand it is thought that the quality of service is so much superior that the added expense is in the long run an economy. This is an age of rapid advancement along all lines and it is absurd to demand that our profession should resort to the methods of practice in vogue twenty-five years ago. The specialist is here to stay. It is impossible for any physician to prepare himself to satisfactorily cover the whole field of medicine. We do not believe that this is to be condemned on grounds of excessive expense for medical service. In consideration of the benefits rendered we believe that the profession generally is decidedly underpaid.

With laboratories employing trained technicians within the reach of practically every physician in this state and with X-ray facilities obtainable with but little effort, there is no reason why the general practitioner should not be able to obtain such information as would permit of reasonably accurate diagnosis in a large percentage of the cases coming under his observation. That there is a large field for the general practitioner, both in the rural districts and in the cities, there is no question, but he must recognize the necessity of calling on the specialist to assist him in cases where the diagnosis is at all doubtful. All too frequently in localities where every facility is at hand to make a proper examination, it is neglected, much to the discredit of the attending physician and to the disadvantage of his patient. For this reason it may be difficult for the patient to differentiate between the regular physician and someone practicing along lines which are foreign to scientific medicine. It may be said that the patient is not willing to assume the expense. If such is the case, we believe the physician has not properly explained the necessity of such procedure or sufficiently stressed its advantages. I have frequently been called in consultation on a case where there has been no information at hand on which to base an opinion except the clinical history elicited at the time, and the results of the physical examination. In many cases this is not sufficient data on which to base a final opinion. There are too many men in our profession who fail to attend their County Society meetings and who neglect their medical literature with the result that they fail to keep abreast of the times and the quality of their work is not such as is demanded today.

Another important influence on the medical practice of today is group medicine. Recognition of the need of co-operation in medical practice practically demands that such arrangement be made if the patient is to have efficient medical service. If we are to have the proper consideration from the public we must not make snapshot diagnoses with little or no real study of the case. It is most unfortunate that patients who have been under medical observation for weeks may never have had a careful, complete physical examination or the ordinary routine laboratory examinations, which are imperative if we are to have only a fair appreciation of a patient's condition. Group practice makes it possible for the patient to obtain a complete study of his case with a minimum of inconvenience and whether in hospital association or private clinic, it marks an advance in medical practice that will be appreciated by an intelligent public.

EDUCATIONAL ACTIVITIES ALONG HEALTH LINES

Health instruction by means of popular lectures to the public, as is being carried on by the Society, also the advantages offered to the profession, are factors that are accomplishing much to the advantage of the profession of this state. The work of the State Board of Health in education of both the laity and profession is a great aid in establishing a feeling of confidence in the profession which will go far towards correcting the evil of the patent medicine vendor or the irregular practitioner. Another factor which is decidedly important in the present day medicine and which promises to become a greater factor in the near future, is the time and expense required of a young man in obtaining a medical education. With the number of graduates decreasing each year, and with the education having been obtained at

so great cost, it is not surprising that the young graduate should select the city with its large populace as a possible clientele rather than the small town or rural center as a location. The small communities are apt to be left without proper medical assistance, which must result in their having to depend on the chiropractor or mechano-therapist, or some other irregular or so-called healer totally unfitted for the work. Moreover, he is inclined to undertake some specialty because of its greater probableness, before he has had any personal experience in general medicine, which is apt to result unfavorably in that his judgment of medical problems would be immature. It is to be hoped that better transportation facilities may in a measure compensate for the sparcity of physicians in the localities more remote from the cities and larger towns, but this is questionable.

There is noted a constantly increasing number of patients coming under our observation who in their histories state that they have been patronizing some type of irregular practitioner. In many cases it is a chiropractor, in other cases a mechano-therapist. With many, the osteopath (not that he should be classed with the chiropractor) is their only medical advisor. To determine if possible the reason for so large a number depending on the irregular, I attempted to get the underlying cause. Those patients coming under my observation were well above the average in financial standing, so that it was not because of a desire to economize that such selection was made. The possibility of obtaining relief by measures other than drugs, a feeling that drugs may give only temporary relief rather than accomplishing a cure, and that possibly the measures used by the irregular may be more efficient and lasting were causes given by the majority. Is it not possible that we have neglected, to the disadvantage of the patient and to the discredit of the profession, certain therapeutic measures other than drugs?

The irregular is a skilful advertiser whose statements relative to his ability to cure are gross misrepresentations. He is of the same type as the individual who sells worthless securities to a public that desires to get rich quick. The reputable physician is honest with his patient; he even acknowledges his limitations, both as to diagnosis and cure. With the uneducated this may be a fatal mistake, but the reputable physician must be an educator, and in time, and with the advancement of knowledge, we believe he will be thoroughly vindicated and come into his own. His high standard of honor and fairness to his fellowmen will never permit him to stoop to the other's type of propaganda. It may be on the other hand, that the physician is too decidedly reactionary and may condemn procedures as valueless, therapeutically, that have certain value. This has been the tendency of the profession at one time with reference to practically everything but drugs. Had the value of other therapeutic procedure been earlier recognized, we probably would have been spared many of the irregulars who attempt to make a cure-all of a procedure of possible value in certain conditions. As a concrete example, the unwillingness on the part of the profession to recognize the proper value of suggestion in disease and who scoffed at faith as a valuable adjunct to his other therapeutic measures, is responsible for the Christian Science healer whose therapeutic armamentarium is limited to suggestion only. A greater desire to educate and more willingness to serve the community in other than purely professional matters, might do much to re-establish the physician in the esteem of the public, which some feel he has lost to a certain degree by his unwarranted isolation in all matters other than medical. It is only by education rather than by legal enactment that we will so enlighten the public as to be relieved of these medical parasites. With every member of our profession doing his duty in an effort to enlighten his clientele as to the advantages of scientific medical service, we need have no anxiety as to the inroads on our legitimate fields by the quack or so-called unorthodox or irregular practitioner.

Coincident with this decided advance in the profession, the laity has been awakening to the value of health as an asset. Formerly, their physician was consulted only when they were ill. The idea of a thorough physical inventory is comparatively recent, much more recent than specialization in medicine. As a result of influences originating largely outside the medical profession, a careful physical examination is becoming a habit with many, and they are innoculating their friends with the idea that it is a necessity; whereas, formerly they could not conceive it an advantage to spend their money with physicians except in actual illness, they now are being educated to believe that prevention is far more valuable than cure and that an investment of this kind yields satisfactory financial returns to say nothing as to prolongation of life and freedom from suffering, which can certainly be accomplished in a great majority of cases.

The necessity for greater attention to health conditions has been impressed on the public mind in several ways. The great percentage of unfitness discovered in the examination of our young men during the late war awakened many. "About four million male persons, be-

tween the ages of 18 and 42 were examined. The resulting figures of defects serve as an index to the condition of the whole country, bearing in mind that they apply only to men in the prime of life. Of 3,764,000 in the first and second draft, 555,000 were rejected as entirely unfit for service. Of about two million seven hundred thousand called to service, 47 per cent had physical impairments, a figure which some good authorities believe is much too low.

Further, the nutritional workers, going into our schools find from fifty to eighty per cent of our children below par physically. And the children from the homes of wealth are as bad off as those from the tenaments!

Let me also call your attention to the results of the observations of one of our large life insurance companies, which since 1911 has been carrying on a campaign in an endeavor to lengthen the life of its policy-holders. They report their results with a class of individuals who live "under an industrial strain and economic pressure likely to render its members more susceptible to disease. To spread health knowledge among its policy-holders this company has prepared and distributed booklets and pamphlets giving instruction in hygiene, suggestions for the care of children and advice for the prevention of disease. The total distribution to January 1, 1924, was 306,000,000 pieces of literature. A visiting nurse service was provided, covering more than 4,000 cities and towns and providing for the care of their policy-holders when ill. To December 1, 1923, a total of 18,932,224 visits had been made. This program was supplemented by the company's local health exhibits, "clean-up," safety, pure milk and other health campaigns, and the making of health and sanitary surveys. They report that "measured in terms of lives, the improvement in industrial mortality in 1923 over 1911, means a saving of 52,600 lives; measured in terms of dollars and cents, it means a savings of $12,680,000 in death claims in 1923 alone.

In comparing the figures of 1911 with those of 1923, it was found that there were 52,600 fewer deaths for all causes in 1923, 16,600 fewer deaths from tuberculosis, the death rate falling twice as fast in Industrial department as in the U. S. Registration Area, 3,600 fewer deaths from influenza and pneumonia, 1,900 fewer deaths from heart disease, 2,700 fewer deaths from chronic nephritis, and 2,600 fewer deaths from typhoid. The increase noted in the death rate was from automobile accidents and cancer.

A careful survey of the records of 5,987 persons examined during the first two years has been made and some remarkable facts brought out. Whereas, in five years 412 of these persons should have died according to the American Experience Table, actually only 217 died. In other words, the death rate of this selected group of nearly six thousand persons who thought enough of their physical welfare to have a health examination was only 53 per cent of the American Experience Table and 72 per cent of the American Men Table. In one year those examined showed a mortality of only 39 per cent of the American Experience Table, while ordinary policy-holders showed a rate of 70 per cent. The company estimates that on this venture it returned the money invested in the examinations (which were free to policy holders) and made a profit of 200 per cent in five years. Another fact brought out was that unless the examinations were regularly repeated, the beneficial effects wore off in about five years.

As a profession, we have been reticent in educating the public as to the advantage of careful medical investigation at frequent intervals. Peter MacDonald, (Brit. Med. Jour., Aug. 9, 1924) in a discussion entitled "The Role of the General Practitioner in Preventive Medicine," calls attention to the necessity of a different relationship between physician and patient for economic reasons, as indicated in the following verbitim quotation:

> "The economic demand on the medical profession has, until recent years, been entirely a demand or cure, and, with the vast majority of the profession, still is a demand for cure. Speaking in terms of economics, we are the employes of the people who pay us our fees, and in the main we perform the task they set us to perform, and on the whole that task is to cure or to try to cure, and tha is what we are paid to do. It is only within recent years that we have begun to prevent, and it is still more recently that we have been asked to prvent and some of us paid to prevent. A result of the outlook which I have described is that until comparatively recently we received our emoluments from people who were ill—a highly unstable position, for it meant that we obtained fees from our clients at just the time when they were least able to afford them."

We are not free from criticism when members of families which have looked to us as the medical adviser, lose their lives 5, 10, 15 or 25 years earlier than was necessary if they had been carefully studied and such advice given at the proper time as might have prevented their early demise. How many business men develop arteriosclerosis and arterial hypertension with a resultant apoplexy, which might have been avoided had the individual been under observation regularly for some years previous and had been properly educated in matters of health. The same might be said with reference to a large number of troubles of organic character that are the chief causes of death after 45. In practically all of these troubles, with careful medical supervision and the patient educated as to his physical limitations,

his life might have been prolonged many years.

This, it seems, is the situation which our profession faces. In many ways the laity is being educated as to the advantage of such a regime. We must now inquire if we are prepared to resume our responsibility. I mentioned earlier the formation of medical groups or clinics which it seems is a necessity if we are to meet our responsibility to the public. It is not my purpose to advocate group practice with a common financial arrangement. This may or may not be advantageous, but I would advise the association of men of different specialties locating themselves in a convenient way in order that the patient may be referred without great inconvenience as his case may demand. There must be freedom from personal jealousies and such professional confidence as will permit the patient to receive the greatest possible good.

The expense to the patient of such an arrangement should be determined by the amount of service rendered and his ability to pay. With very few exceptions the members of our profession are always underpaid. The laity must be educated as to the value of health as an asset in life. A man that would gladly spend $500 in having his car overhauled would feel that he was being robbed if he paid $50 for an examination which might mean years of life or the absence of suffering, which could not be properly measured in a financial way. We are to blame for not educating our clientele somewhat as to the value of our service. Too frequently we criticize a fellow practitioner who has received a seeming large fee without first knowing how much time he has devoted to the case or what it may mean to the patient. There is no profession where the members have to spend so many years and with such a financial outlay, as the medical profession, and probobly of all the professions we are the mast poorly paid. Let us have more interest in the welfare of the profession as a whole, and in so doing we will establish ourselves much higher in the public esteem.

DISCUSSION

DR. BRUCE C. LOCKWOOD (Chairman): There is a lot of talk. You see it in the medical journals and you see it copied from the medical journals into the newspapers,—talk about the standing of the medical profession with the laity being low. The people are preferring chiropractors and irregulars.

I think this investigation that was carried on in Chicago last year has done a lot of harm, because I don't think it is true. I think the standing of the medical profession with the people today is higher by far than ten years ago and is rising all the time.

It has taken the life insurance companies and some concerns of business experience to teach the medical profession about the value of periodical health examinations. The medical profession is always lax in business methods.

I think the people are wanting periodical health examinations. Even as lazy as they are, there are a lot of people who come for periodical health examinations; and the people are shopping from one physician to another until they can find a doctor that will give them a thorough examination. I think the people are coming to demand it. I think that they are willing to pay for it.

In regard to the big question that comes up, that of finances. There are many doctors who perhaps overcharge them. Some of them—probably the majority—undercharged them by far. If the doctor will figure up the cost of an examination in his time, based upon the salary his neighbor is drawing, the time spent on the patient, his rent, and so forth, he will find that the medical fee is lower than it should be.

It is my feeling that there should be some definite arrangement, made perhaps through the State Medical Society or any Medical Society, as to the cost of these examinations and how much the doctor should receive because the average patient, many of them, always feel that they are charged perhaps a little bit too much many times.

You might charge one patient five dollars and he might think it was cheap and the next patient would think he was stuck. One patient might think twenty-five dollars was cheap and another think he was stuck. We should have newspaper publicity on what these physical examinations should cost.

DR. C. W. HEALD, Battle Creek: I have been very favorably impressed with the paper to which we have listened this afternoon. But I don't think we can put too much importance upon advising our patients to have thorough-going examinations. I am sure they will have more confidence in us and we can build up the confidence in the medical profession in this way.

I wish to cite just one case that came under my observation just two or three weeks ago. This was a lady from New York City who had been under the care of a prominent physician and she had been complaining for a goodly number of years of indigestion, as she called it. While there was no real definite group of symptoms suggesting any very definite chronic disease, I did not feel free to allow this patient to slop through my hands without investigating the gastro-intestinal tract very thoroughly.

I advised an X-ray study of the gastro-intestinal tract, and found that she had gall-stones. She was operated about two weeks ago and seventy gall-stones were found in the gall-bladder. She was delighted to find the cause or the basis for her group of symptoms.

I think this only impresses upon all of us the fact that wherever there are symptoms extending over quite a period of time we ought not to be satisfied unless we make a very thorough investigation of the patient.

DR. HARRY CLARK, Detroit: I want to thank Dr. Eggleston especially for bringing out the points that he has in regard to examination,—physical examination, laboratorily, both from the standpoint of the clinical diagnostician and the standpoint of the roentgenologist.

I have in mind a so-called irregular, an osteopath, who makes a business of taking care of people, making a yearly charge for keeping them well. This man, strange as it may seem, gives each one of these patients a complete examination, including blood count, gastro-intestinal examination, X-ray examination of the gastro-intestinal tract, stool examination, urine examination and gastric contents examination, from the laboratory standpoint. That is the first thing that is done. And he makes a complete physical examination. He tries to regulate that patient's daily life.

He is doing something for these patients that

their physicians should have been doing. And he is charging a good round fee and getting it.

It is not that people won't do it. It is because the doctors fail to use a part of their armamentarium that is at hand. And if they will use it, they will get better results.

The doctor spoke especially about the batting average of the man in the Cincinnati General Hospital and showed how it was pushed up by the use of complete examinations and the realization that every patient that died in the hospital was going to have an autopsy. They pushed it up from 50 per cent to about 80 per cent. These are the things that help impress the general medical profession with the fact that if you are going to make a correct diagnosis you must make use of every instrument which is at hand.

DR. E. L. EGGLESTON (closing): In reference to the present feeling of patients that they are overcharged, I would like to know how many wealthy doctors there are here. There are fewer men who acquire financial affluence through the medical profession than anything else.

A man will take his automobile to the mechanic and insist that it be looked over carefully. It may cost $50, possibly more (I have paid more myself without complaining). When you ask the patient to have a thorough physical overhauling, for which he is charged $50, he feels that the charge is excessive. You know that in comparison with his automobile inventory, if he should pay you two or three hundred dollars it would not be excessive. It may be possible than in exceptional instances excessive charges have been made both for physical examinations and medical services, but this is the exception rather than the rule.

I feel that we err on the side of not educating our patients to the value of routine examinations at stated intervals for which they should pay a reasonable fee. In the majority of cases we really make them objects of charity by giving our services for a sum which is less than our time is really worth.

STUDIES IN THE TECHNIC AND CLINICAL APPLICATION OF SEX GLAND TRANSPLANTATION*

MAX THOREK, M. D.
CHICAGO, ILLINOIS

It is one of the tragedies of human life that at the time when the mental powers and judgment have attained their full maturity, when the man is of the greatest value on account of his experience and wisdom, that the physical powers should wane. There is then the sad spectacle of a man capable of conceiving and planning the execution of great projects, but physically unable to execute them. "Young men for action, old men for counsel," says Francis Bacon in one of his Essays: "The Experience of Age Directs New Projects, But the Errors of Young Men are the Ruin of Business." Nevertheless, the world, which judges mainly from externals, rudely pushes aside the counsel of the old and relegates the man of ripe experience to the scrapheap, falsely considering that the mind is as weakened as the body.

*Read before Section on Surgery, M. S. M. S., Mt. Clemens, Sept., 1924.

Physiologic senility is an unfortunate fact, but premature physical senility is far worse. It is a condition which for one reason or another is prevalent enough, and one that we meet every day in some way or other, and deal with by whatever means we can to hold back the effects of advancing years.

Biological studies have shown that bodily and mental vigor depend upon the activity of the vital processes, and that the glandular secretions of the body play a most important role in the regulation of the functioning of the vital processes. "The endocrines" says Garretson[1] "are fundamentally basic to all principles of physiology; in fact endocrinology is physiology. . . We must all be endocrinologists to practice successfully the art of healing."

Of all the endocrine secretions that of the testicle is perhaps the most important in dealing with the general vigor and "masculinity" of man, and is of very particular importance in regard to senility. In women, of course, the ovaries play a similar role.

Although from early times it was known that in a general way the secretion of the testicle, apart from the generative function, was concerned with the maintenance of masculinity yet it was only toward the close of the Eighteenth Century that Hunter[2] distinguished secondary sex characters as being independent of the reproductive function. The work of later investigators established the fact of a dual testicular secretion, i. e. the seminiferous output and another which affected the whole organism, giving it the physical character of "maleness" and governing all sex characters and impulses.

While the question of a separate testicular secretion affecting male sex characters is universally accepted, yet even at the present hour there is not complete agreement regarding what particular element of the testicle is responsible for the secretion governing sexuality and how this secretion acts. On the one hand, there are some who maintain that the spermatogenetic elements of the testicle alone are concerned not only with spermatogenesis and elaboration of ripe spermatoza, but also that these same elements prepare and discharge substances into the blood and lymphatics which act as a hormone and are directly responsible for secondary sex characters as well as for sexual desire and potency. On the other hand, there are those who maintain as completely proved that the spermatogenous elements of the testicle are concerned only with spermatogenesis and attribute to the so-called interstitial or Leydig cells of the testicle a distinct glanular function which alone is responsible for sex characters, desire and potency. This latter view was con-

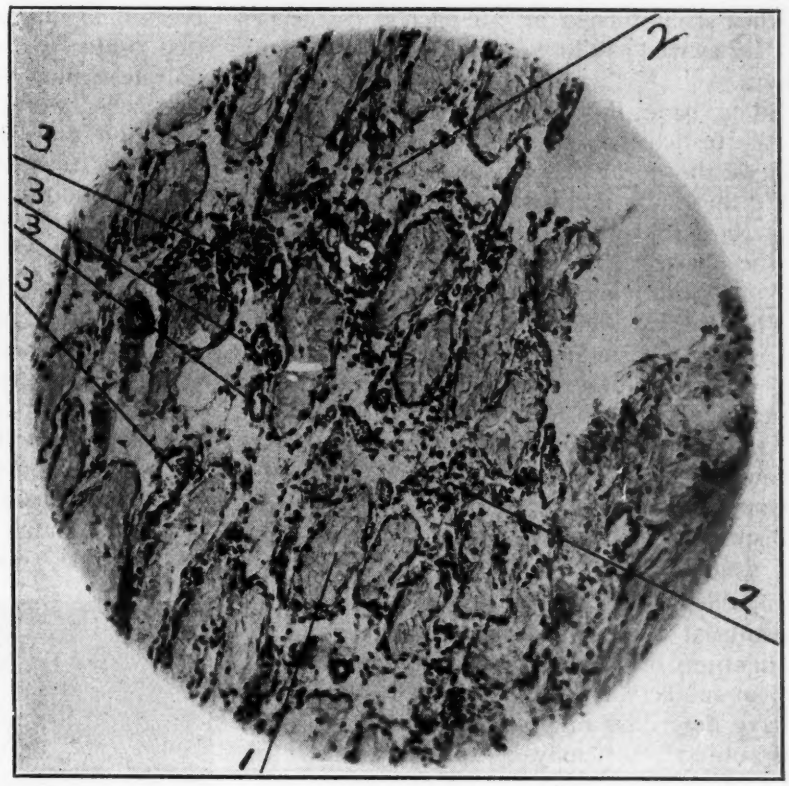

Fig. 1. (1) Tubuli seminiferi completely degenerated. No seminal cells. (2) Interestitium increased in quantity. Objective 7.5; ocular 8 (Leitz apochromatic). Magnified 205 diameters. Hematoxylin and eosin.

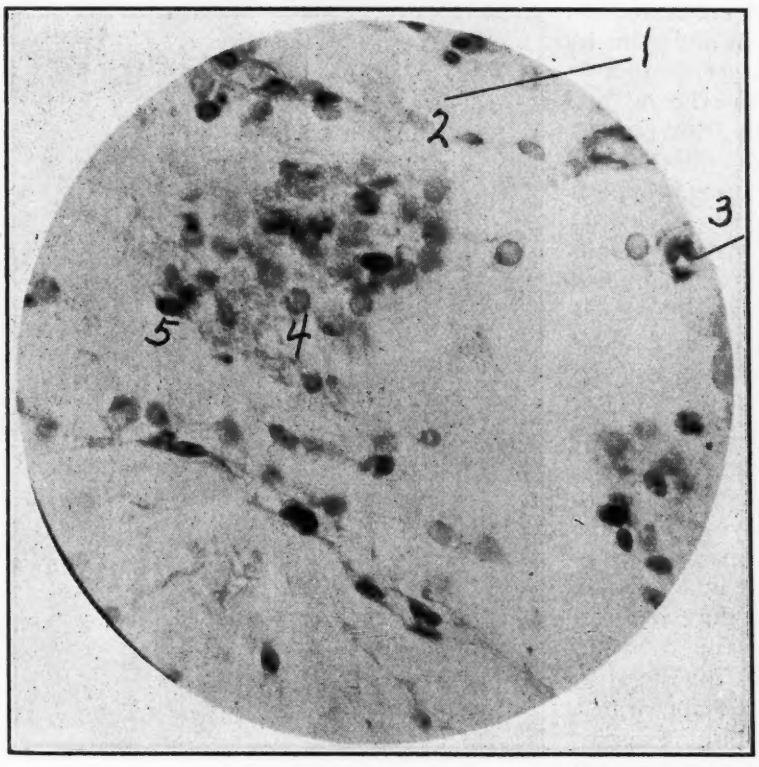

Fig. 2. (1) Tubulus seminiferus. (2) Wall of tubule composed of connective tissue. (3) Leydig cells. (4) Leydig cells. (5) Leydig cells. Objective 7.5; ocular 2. Leitz apochromatic. Hematoxylin and eosin stain.

sidered settled by the experimental investigations of Bouin and Ancel[3] in 1904; it was further strengthened by Steinach's[4] researches in 1912 as well as those of Massaglia[5] and many others.

Some have thought that the Sertoli cells of the testicle were concerned in the elaboration of the organic hormone referred to; but while there is a multitude of evidence to show that these Sertoli cells act as nutritive cells to the sperm cells, there is no evidence that they elaborate an internal secretion.

That the Leydig cells alone furnish the sexual organic hormone is opposed by Retterer[6] and others. These investigators, from histological findings, consider that the epithelial cells of the seminiferous tubules become transformed into reticulated tissue and furnish a plasma the absorption of which into the organism determines secondary sex characters and desire.

In order to throw some further light on the question at issue I have made a number of investigations on the higher apes as well as upon human subjects. This experimental work which I have described in previous contributions on this subject[7], [8], [9], may be summarized as follows:

The animals were castrated and after a lapse of time, when they were found to be sexually impotent, the testicles from young similar animals were removed and transplanted into those castrated. The removed testicles were, however, prior to transplantation, submitted to roentgenization which, though not sufficient to devitalize the Leydig cells, was yet enough to destroy all seminiferous cells. In other words, the testicles were microscopically "interstitialomas" (i. e. composed of interstitial tissue alone.) The results of this animal experimental work showed 75 per cent of restoration of sexual potency and 25 per cent failures. Among the successes should be mentionel the transplantation of a human ectopic testicle in a macacus nemestrinus. By successes I mean the restoration of male sex characteristics as well as of sexual power and libido.

In two among other human cases, in which I had the opportunity of studying the Leydig cells, the results were of the greatest value in establishing the exact role played by these elements. The first case was a man who was powerfully potent sexually, with intact libido, but who was entirely unable to produce an emission of semen. In this man the tunica vaginalis was opened and the testicles investigated. Macroscopically the testes had the appearance of eunuchoid testes. Microscopical examination showed an absolute absence of seminal cells upon studying a great many sections; neither could an isolated Sertoli cell be detected. On the other hand, the Leydig cells were increased in number. The inevitable conclusion that could be drawn in this case was that the only testicular elemental cells present, the Leydig cells, were responsible for the internal secretion and for the clinical manifestations of powerful sexuality in this patient.

The condition of the testicular elements can be appreciated from the accompanying histologic sections: (Figs. 1 and 2.)

The second clinical case was that of a man, aged 70 years, with active and potent *vita sexualis*. Physically the man appeared much younger than he really was. After complete examination his case was diagnosed as bilateral cryptorchidism; incipient bilateral inguinal hernia; verified on operation. A necrotic calcareosebaceous mass was found in the right inguino-abdominal region which, on microscopic examination, was found to consist of dead

Fig. 3. GrGoss appearance of calcified and degenerated intra-abdominal tumor (testis).

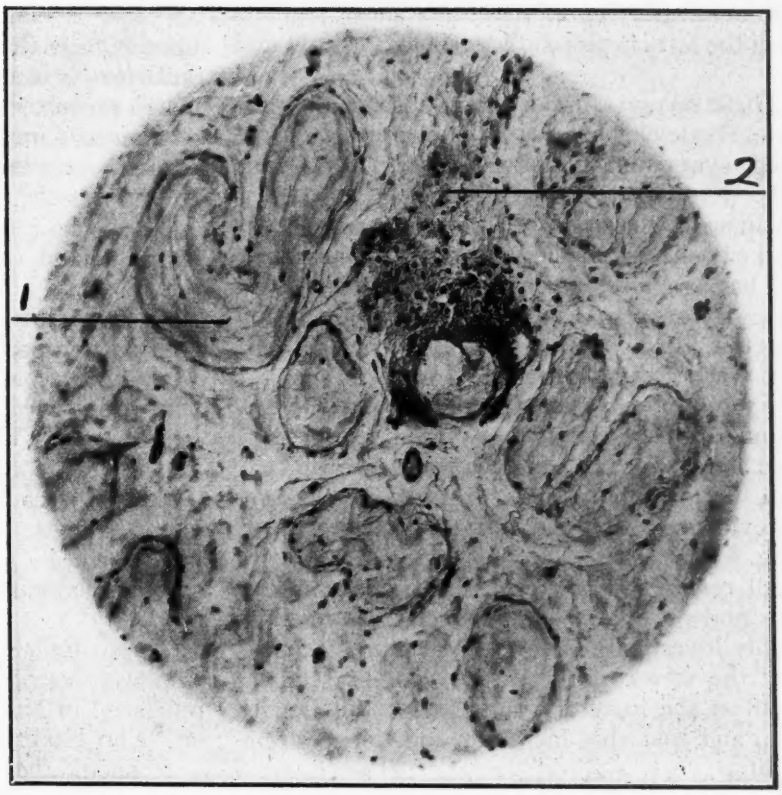

Fig. 4. Mr. J. K. Cryptorchidism. Ocular 8; objective 16. Magnified 105 diameters. Leitz apochromatic. Hardened in formolin, stained with hematoxylin and eosin. (1) Empty tubuli seminiferi. (2) Interbular synctium containing Leydig cells.

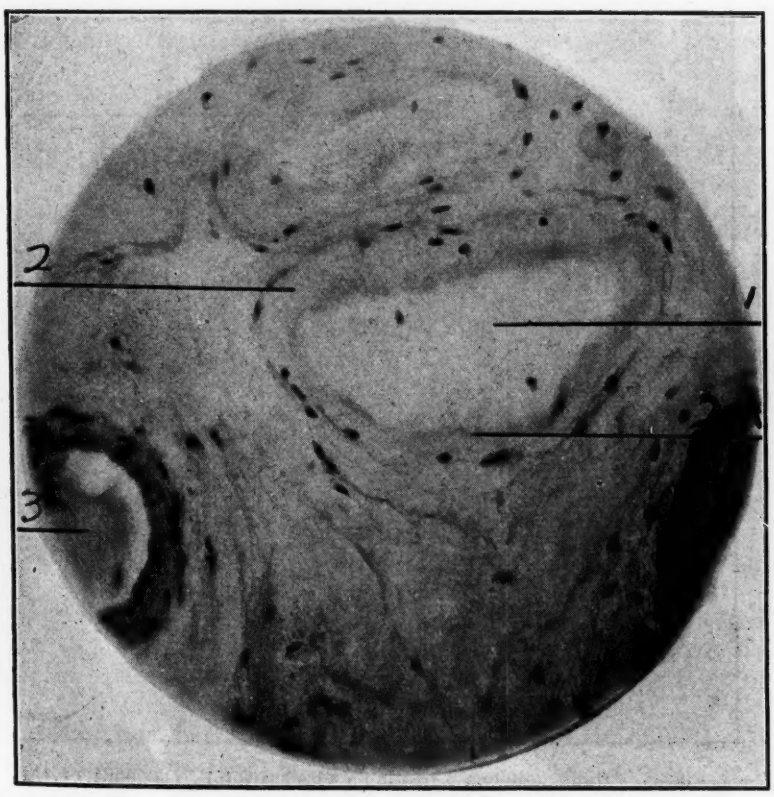

Fig. 5. Mr. J. K. Cryptochidism. Ocular 8; objective 8. Magnified 215 diameters; Leitz apochromatic. (1) Empty tubuli seminiferi. (2) Wall of tubuli composed of one layer of connective tissue cells. Total absence of spermatogenetic elements. (3) Much thickness of blood vessel walls.

testicular tissue and debris. (Fig. 3). A cryptorchidic testicle was found on the left side. The accompanying illustrations show sections from the left cryptorchidic testicle. (Figs. 4 and 5).

These sections disclose total absence of spermatogenetic elements with abundance of reticulated syncytium and well-developed Leydig cells.

Clinically this patient showed persistence of marked sexual potency with remarkable virility for his age, and normal sex characters. All these factors can lead only to the conclusion that the Leydig cells, the only testicular cells left, were *alone* responsible for them.

On the other hand, the microscopic investigation of testicular sections from eunuchoids have shown apparent abundance of Sertoli cells and spermatogonia, but no Leydig cells, yet no evidence of masculinization was present. (Fig. 6).

All research work that I have done on animals and on clinical cases which I could thoroughly investigate have in every way strengthened the views of those who, like Lipschutz[10] insist on the incretory function of the Leydig cells, and that this incretory function governs virility.

I now proceed to the question of testicular transplantations. That such transplantations "take" and effect in the organism the lost function of the organ which the graft replaces has been proved by such an array of experimental and clinical facts that it would be entirely superfluous and laboring the point to more than refer to it here. The only question is the durability of the graft, and this I insist is a question of technic. I have shown elsewhere[11] before the Royal Academy of Medicine in Rome and the Surgical Society of Paris, France, that there is no question whatever regarding testicular transplants living and becoming vascularized. After much experience I arrived at the conclusion that implantation of the graft in the retrorenal space, between Gerota's capsule and the endo-abdominal fascia, offered the best opportunities for the graft on account of the rich vascularity of this region. But the graft may also be implanted abdominally in the supraperitoneal space, i. e., in the region of the deep epigastric vessels, the mobile and free areolar tissue of which forms the base upon which the implant rests. The graft is sufficiently secured in this latter place by the gentle presure exerted from above by the rectus abdominalis muscle; the "give" of the peritoneum obviates any undue pressure on the graft by the muscle or otherwise.

The technic of Lichtenstern and Lespinasse is faulty and causes a rapid disappearance of the implant. Pressure conditions are responsible for failure in the technic of the former and too thin sections (1 mm.) result in failure when the technic of the latter is used. The best results are obtained when the whole testicle is used. The testicle after removal is denuded of the tunica vaginalis and the tunica albuginea is cauterized in such a manner as to expose the tunica vasculosa. This method I have termed "lanternizing" and it facilitates the vascularization of the implant in its new abode.

The complete details of my technic with copious illustrations were given in an article published in November, 1923,[8] and in my book on "The Human Testis."[9]

It should be said here that although in a properly executed transplantation the graft becomes vascularized, lives and functions, yet it

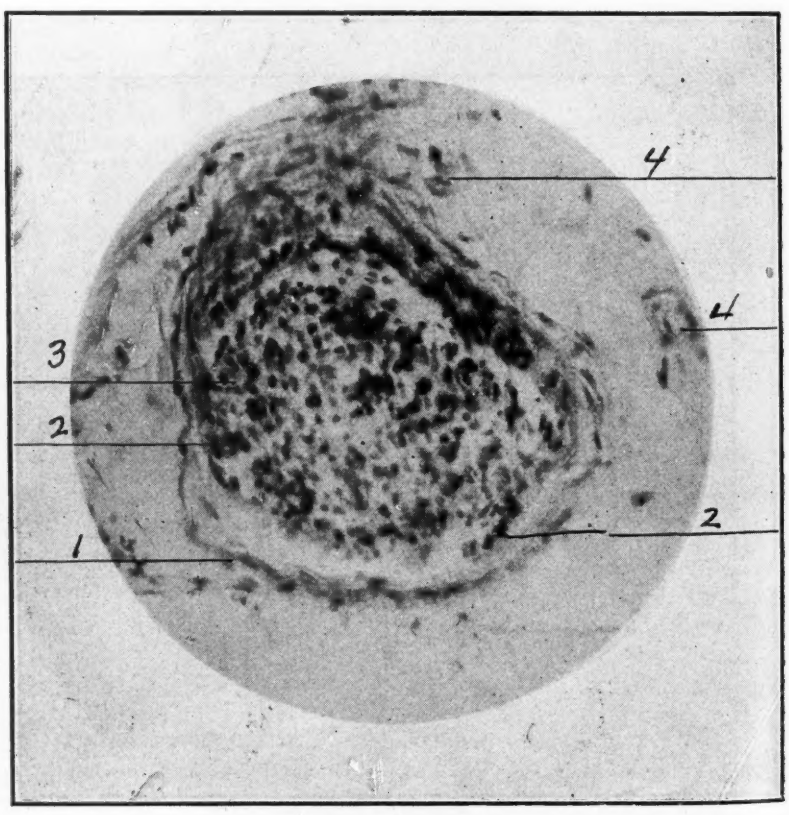

Fig. 6. Eunuchoidism. (Author's observation.) (1) Wall of seminiferous tubule. (2) Sertoli cells. (3) Spermatogonia. (4) Connective tissue. Note absence of Leydig cells. Magnification of Fig. 18 to 384 diameters. Lietz apochromatic microscope. Ocular 4 X; objective 16.

slowly undergoes syncytial transformation. This begins in the seminal cells and finally results in the disappearance of the Leydig cells which are the most resistant and the last to disappear in the graft. But this process takes from two to three years, and then a fresh implantation can be made, if need be, which will be effective for a further period.

Testicular transplantation is of undoubted surgical progress and a method of therapeusis with clear indications, but it is an unfortunate and regrettable circumstance that, owing to lurid, sensational and fantastic newspaper descriptions, one, and in fact the least important therapeutic result of testicular transplantation should have been heralded as the sole object of the operation. This has prejudiced the lay mind and to some extent professional opinion and has cast discredit on a method of surgical therapeutics which is the outcome of many years of patient research and experiment, and which, when indicated, may be expected in a great majority of well selected cases to give excellent results. I refer to the exploitation of the purely sexual side of testicular transplantation, and to the claims made that this operation is a "rejuvenating" one. That the implantation of mature testicular tissue in a patient who, on account of loss or damage to his testicular tissues, may have become sexually impotent or lacking in desire, can restore *potentia coeundi* and desire, cannot be denied and is frequently observed; but testicular transplantation is not a Fountain of Youth, nor does it, like a Mephistophelian wand, restore a sexually decrepit Faustus to a condition of ardent and active sexual regeneration. But while there is no "rejuvenation" in the strict sense of this word, because no organ or set of organs can be returned to a juvenile state when pathologic or advanced senile changes have made anatomic senile changes in them, yet there is a certain restoration of function. In an individual in whom, owing to deficiency of gonadal secretion from any cause, there is a *premature* loss of virility, testicular thansplantation may reasonably be expected to restore such lost virility. By virility I mean not alone sexual power, but all the physical and mental attributes which go to form manliness.

Whether the results following transplantation be the direct result of the testicular hormone alone on the organism, or whether it is due to the excitation of other glandular activities by the testicular secretion, is not a question of clinical importance; but what has been observed by other operators and clearly by myself is that in the prematurely senile the transplanting of testicular tissue has brought about a lowered blood pressure, an increased muscular power, diminution of adiposity, amelioration of impaired eye sight, symptomatic sexual restoration and an improved *psyche* owing to the improved physical condition.

Premature senility, therefore, quite apart from merely sexual consideration, is an indication for therapeutic testicular transplantation, or rather, as I prefer to call it, a *therapeutic gonadal implantation.* Loss of the testes through traumatism, tuberculosis, sarcoma, suppurations, etc., neurasthenia gravis, dementia precox and other psychoses, and various glandular syndromes, such as Froehlich's disease, eunuchoidism, hermaphroidism; in fact, any condition in which the testicular secretion (and consequently that of the Leydig cells) is either absent or deficient, is *per se* an indication for therapeutic gonadal implantation. The prime object of the intervention is not sexual, but the restoration of impaired virility which, of course, includes the sexual function. On this view the operation may be quite successful, even though the restoration of sexual power is but slight or even absent.

From 1919 to 1923 I performed altogether, 97 therapeutic gonadal implantations in males for the indications and with the results shown in the following table:

TABLE

RESULTS OF 97 TESTICULAR TRANSPLANTS OBSERVED FROM 1919 TO 1923

Type of Cases No. of Cases—69	Type of Transplant	Results
SENILITY, physiological and precocious, representing all degrees of clinical manifestations including the male climacterium and chronic constitutional disease.	29 homotransplants	31 symptomatic restorations to normal.
	40 heterotransplants	13 markedly improved; 12 slightly improved; 13 failures.
No. of Cases—11 LOSS OF TESTES from trauma, tuberculosis, sarcoma, or suppurations.	3 homotransplants	8 markedly improved;
	8 heterotransplants	3 failures.
No. of Cases—8 NEURASTHENIA GRAVIS; Sexual neurasthenia; early impotency not due to organic disease.	3 homotransplants	5 markedly improved;
	5 heterotransplants	3 failures.
No. of Cases—5 DEMENTIA PRECOX.	1 homotransplant	2 markedly improved;
	4 heterotransplants	2 failures; 1 slightly improved.
No. of Cases—4 GLANDULAR SYNDROMES. (Froelich's disease, 2 Eunuchoidism 1, Hypogenitalim.)	4 heterotransplants	1 slightly improved; 3 failures.

This table shows complete symptomatic recovery or marked improvement in the following percentages:

Senile atrophy	64 per cent.
Functional disorders	12 per cent.
Trauma or pathology	72 per cent.
Psychoses	40 per cent.
Glandular syndromes	25 per cent.

The field for therapeutic testicular transplantation is therefore wide and improvement in certain well-defined pathologic states can be anticipated in properly selected cases. Moreover the accumulation of clinical data may widen the scope and give the operation a definite status in surgical therapeutics. The same is true of ovarian transplants.

Summarizing the subject it is considered that the following general propositions may be laid down:

1. That the interstitial cells of the testicle, the Leydig cells, govern not only sexual power but also male characteristics, physique and virility in general.
2. That testicular implants live and become vascularized, and that the Leydig cells in such implants have the longest survival.
3. That the Leydig cells in transplants of testicle exert the same effects on the organism as the Leydig cells in the normal testicle.
4. That for therapeutic purposes grafts from the testicles of the higher anthropoids may be of equal utility as grafts from human subjects.
5. That the best therapeutic results are obtained with grafts implanted in the retrorenal space, or supraperitoneally in the region of the deep epigastric vessels.
6. That testicular transplantation is indicated as an excellent method of surgical therapeutics in any condition which may be fundamentally due to loss of testicular function, i. e., complete or partial failure of testicular secretion.
7. That testicular transplantation is not a "rejuvenating" operation, although generally it may be expected to materially restore physical and mental capacity which has been prematurely lost.

DISCUSSION

DR. A. W. HORNBOGEN, Marquette: I think it is rather presumptious on my part to attempt to discuss such a scientific dissertation as has been presented. You all realize that in order to thoroughly discuss this paper a man must know absolutely all the histological elements as well as the serological elements and other phases of the question at issue, and I must confess to my total inability to discuss this paper.

I consider that Dr. Thorek, in making these experiments that have taken years of time and painstaking work, has proven that the hormone of the testicle comes from the Leydig cell. I think that is one of the disputed points, a point on which there is much difference of opinion by different men who are working on this line of therapeutic treatment but I think that he has proven whence the internal secretions of the testes come. I think it was fortunate for Dr. Thorek to be able to demonstrate that the Leydig cell was the active part in delivering the testicular hormone from his studies on the human cases he presented to us.

DR. FREDERICK W. ROBBINS, Detroit: We do not say much about this subject because we do not know much about it, but I would like to ask whether in the case of Dr. Frank Lydston, who experimented quite largely and also wrote a book on this subject, it is true that the operation he brought out did not prove successful. It is easy to be enthused with the temporary results following transplantation in those without the gonad function. Dr. Lydston was quite enthusiastic and I think that enthusiasm lasted for several years, or until his death. Others have considered the same subject and have concluded that one is not justified in trying to transplant testicles into human subjects, for various reasons. One of them is the difficulty one experiences in finding anyone who is willing to give up a testicle for the sake of another, and another reason is the rather rapid atrophy which occurs. I would like to have Dr. Thorek discuss from his standpoint Dr. Lydston's work, about which he was so very enthusiastic.

DR. LOUIS J. HIRSCHMAN, Detroit: I wish to inject some observations that I heard Dr. Voronoff give in his paper last year in London. I do not know a thing about the subject, but I heard a few remarks which I think may be of interest. I think the work these gentlemen are doing has a fairly large economic effect. Probably ten years from now the men who sit around listening to this subject will be wearing different clothes because of the work they are doing.

Dr. Voronoff showed many interesting pictures, among them an old decrepit looking chap. He then showed some ram's testicles which were split into wafer-like masses and transplanted into old, scrawny looking rams. He then showed another picture of large, fine looking rams, with long, silky coats, longer than anyone had ever seen on a ram, and that was the result of transplanting the testicles into these old decrepit looking rams. Then he showed a moving picture film of a poor old toothless and lame medical man walking across the screen, an old fellow with no teeth, no hair, nothing. Then another picture showed a gentleman who bore some very faint resemblance to the old gentleman, rowing a young woman against the current in the Thames. That made some impression on me, and after I went away from the meeting I happened to pick up a paper published in Paris and saw where the French Agricultural Commission had become so impressed with Voronoff's work that they had made an appropriation of some thousands of francs for the continuation of the work among sheep, thinking that if such a result could be obtained by Voronoff's work it would be well worth while, because of the better wool they would obtain.

DR. HERBERT W. HEWITT, Detroit: I wish to ask Dr. Thorek if he will discuss the practical side of the question. Also, if he would not mind, I wish he would mention that famous case in Chicago and the results therein. I think the operation was performed by Dr. Lespinasse. I would also like to have him discuss the Steinach operation.

DR. WALTER F. MARTIN, Battle Creek: I wish to ask Dr. Thorek to discuss the relation of the Steinach operation to the Leydig cell, and what relation that has to the transplant.

DR. MAX THOREK, Chicago, Illinois (closing): The question of Dr. Martin as to the relation of the Steinach operation to the Leydig cell, as you all know, gentlemen, Steinach's procedure consists in dividing the vas deferens, paying particular attention to the deferential artery. The Steinach procedure is that when you cut the vas deferens you have done nothing, you must preserve its delicate arterial supply. You get a spermastasis according to Steinach that causes a stimulation of the interstitial structures—an hypertrophy. In his experiments upon rats and guinea pigs he showed some very interesting specimens to me in

his laboratory in Vienna. The only thing I took exception to—I would have appreciated it more if he had shown me microphotographs instead of drawings. Steinach's work has been tested out after the laughter has died away, and the results are being listed, some by Teegarden published in the last few months, and by some of our American contemporaries.

Dr. Hewitt has asked about the practical side of transplantation. So far as that is concerned I wish to emphasize that when a man comes to me who has been in the war and whose testes have been torn away by a shell, and who is becoming fat and losing his hair and becoming eunuchoid, I say that practically speaking, this man is suffering a deficiency of secretion just as a woman is who loses her ovarian incretion and it is our solemn duty in such and in similar cases where the trouble rests in the deficiency of testicular hormone incretion to furnish that hormone to those individuals by any method available. In the eunuchoid child, the child suffering from Froehlich's syndrome, where there is distinct evidence of eunuchoidism, in loss of tuberculous testes, in fact—in all the cases where I find a man is suffering distinctly from a deficiency of testicular hormone—the patient should be given the benefit of transplantation.

I have enjoyed reading the works of Dr. Hirschman from time to time and am glad to see that he is in possession of all his faculties and a very brilliant speaker. He had the pleasure of meeting my friend Voronoff, who is, as I know him, a sincere worker, a scientific observer and a man of high ideals and sterling principles, just as Brown Sequard was, who died in obscurity because men laughed at him. They laugh at him no longer. He is the acknowledged father of endocrinology. Of course, they are enthusiasts, but they are enthusiastic at the Mayo Clinic about Lugol's solution in thyrotoxicosis, and it is the same with every new method. We must have criticism because we learn by criticism. If Voronoff is a bit over-enthusiastic he is no more so than any man who works to see his labors crowned by success.

I am delighted that Dr. Robbins spoke of Dr. Lydston, who was the pioneer in transplantation. I examined Dr. Lydston, at his request. He had the moral courage to transplant testicular tissue into himself. He had the courage of his convictions and transplanted a testis into his own scrotum and he was enthusiastic until the day he died. His enthusiasm he believed was justified. Why did he not get results? He transplanted the testis into the scrotum and that is a very poor place to transplant a testis. I told him so, we disagreed, but that does not mean that he was not a brilliant man. It is up to us younger men to work out and improve on older methods. Where will we get our material? Dr. Lydston got his from individuals who had died by accident and he first ascertained that those individuals were free from taint, syphilitic and otherwise. He proved that where those tissues were removed and kept on ice for seventy-two hours they retained their biochemic elements and could be used for transplantation. Stanley, of San Francisco, has taken these tissues and put them in vaseline and frozen them. I would never advise any physician to have a man or woman part with any of their organs, but I have no dislike to taking these tissues from dead bodies of individuals who have died by accident and using them for the benefit of the living.

Without criticism we cannot learn and I predict that transplantation, not only of the testis and ovaries, but of other endocrines, such as the parathyroid, thyroid, adrenal, pituitary and other organs of internal secretion has a future in clearly indicated cases, just as have other now recognized methods of rational therapy.

I wish to thank you, Mr. Chairman, and all the gentlemen for their kindly discussion of my paper.

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CLINICAL SIGNIFICANCE OF JAUNDICE

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Jaundice is best defined as a staining of the tissues and body fluids with bile. In a few diseases and in many more instances our knowledge begins and ends with that simple definition. Medical progress has cleared our nosology of the many varieties of jaundice that were very useful to our predecessors, but such terms as catarrhal jaundice, icterus gravis, congenital family icterus and icterus neonatorum still persist. In our average run of patients we frequently see the sick where we would like to apply some of the old time convenient names, but our training and inborn curiosity for causes make us look further and search out a reason, thereby applying more precise and descriptive terms to the disease at hand.

In searching out such causes we meet difficulties, for the whole subject is obscure and physiologists have told us little as to what bile pigment is, less of where it comes from and nothing as to what it is for.

Chemical formulae may be found in abundance, but they help us very little for bile pigments in the body and intestines are elusive and changeable things, so that laboratory studies of patients bring little help to the clinic. In fact, we are obliged to deal with bile pigments in the same chemical procedures that were introduced when unqualified jaundice was a frequent household disease. In the last 20 years I believe that but one fundamentally new thing has been produced in the chemical understanding of jaundice, and that is the discovery that carotin, a pigment derived from green and yellow vegetables, may so stain the blood and skin as to simulate jaundice.

*Read before Section on Medicine, M. S. M. S., Mt. Clemens, Sept., 1924.

Our knowledge as to where bile pigment comes from is troubled with uncertainties and doubts. We all believe it mostly came from the liver until Whipple found that it could be formed from blood pigment by serous membranes and blood vessel walls without the aid of the liver, but now the Rockefeller workers claim that, in the so-called head circulation experiments of Whipple, the liver was not excluded. Lately Mann of the Mayo Foundations finds that in definitely de-hepatized dogs, which may live 16 hours, bile pigment accumulates in the circulating blood, and we must reserve our judgment as to whether bile pigment is a secretion of the liver or a substance formed elsewhere to be excreted by the liver. Even a very useful idea that bile pigment is absorbed into the portal blood to do duty again in the liver is much in doubt—which makes our work with urobilin half-hearted and increases our difficulties in understanding the formation of blood pigment.

As to what bile pigment is for, we know only that it serves to cause much trouble for clinicians and much work for experimenters.

Without knowing more about the first principles of bile pigment, I embarked—possibly unwisely—a number of years ago to study the behavior of bile pigment in the various types of jaundice, hoping—as in fever and leucocytosis, equally obscure phenomena—to give jaundice as a symptom more clinical usefulness.

By animal experimentation, principally obstructing experiments of short and long duration, on dogs and by injection of bile and blood pigments, we were able to see something of the behavior of displaced bile pigment in the body. And by examination of the blood, urine and stool of many patients at frequent intervals where the pathology of the disease at hand was understood, jaundice began to be more than a name.

The methods for such observations are not good when quantitative determinations are needed, but they are good enough to be useful and better than none.

For the blood the direct estimation of the yellow color of oxalated plasma serves very well. Originally I measured the amount of bile pigment by diluting the plasma till the yellow color disappeared in a column 1 cm. deep and recorded the number of dilutions. In order to harmonize with other writers and because it is a better way, we are now using the Muhlengracht standard, which is a 1:10,000 solution of potassium dichromate. This represents the color of normal plasma and the unknown is read directly against and expressed in terms of the standard. This is a better method, because our internes at Lakeside Hospital can learn it quickly and make uniform estimations that can be checked.

This device seldom goes wrong; traces of hemolysis in the specimen disturb it but little, for hemoglobin has weak staining properties and the process of diluting dispels the red, leaving a yellow that usually matches the standard.

Carotin can lead to confusion here, and as carotinaemia is suspected only when a diet rich in colored vegetables has been taken, carotin can be ruled out by the selective solubility of the pigment in benzine. Carotinaemia is uncommon in adults save diabetics, and usually can be differentiated by the excess of jaundice in regions where the skin is thick and the scanty color where skin is thin. True jaundice shows most in the palms and less in the sclerae.

While this method for blood has not the very convincing accuracy that is supposed to go with methods expressed in milligrams per kilo, it serves well to compare the degree of jaundice with that of another case, and what is more useful, to gauge the progress of cholaemia.

No satisfactory quantitative method for bilirubin in urine has been found for patients. Where large amounts are present some have used the green color that develops with acid, and read it against an artificial green standard; but in my hands this green color is uncertain and where small but important amounts must be measured, the urochrome color of the urine interferes. Inasmuch as all pigment that comes in the urine finds its way through the blood, we rely principally on blood determinations. Bile pigment is a threshold substance —that is, it has a normal concentration for blood before it passes the kidney. This threshold may be greatly raised, but I think never lowered, so that we are always safe in estimating jaundice by the bile in the blood.

This does not apply to urobiline—and unfortunately, for this pigment we have a good method for urine—and much use may come of it. The method is that of Wilbur & Addis. It is fairly reliable, but rather troublesome, requiring a spectroscope.

The natural road for bile pigment is the intestine, and the vehicle the stools. It arrives invariably for our examination as stercobilin, which is identical with urobilin, and is measurable by the same method.

Under unusual circumstances only does bile hurry so rapidly through the intestine that we see it as bilirubin or biliverdin. The daily collection of 24-hour quantities of stool and process of extracting an aliquot part of its urobilin and the measuring of that extract is an onerous task, but useful information often comes

that way. We have done many hundreds of determinations and have learned that the gross appearance of stool, which is the common method, is a poor guide to its bile content. And better still, troublesome and inaccurate as it may be, this method gives a gauge of the changes in amount of bile presented to the intestine. By following and checking this method, by estimating the bile content of the duodenum, we have learned much about the normal behavior of bile in the intestine. We now know that considerable bile can find its way into the duodenum and none be in the stool. In one instance of so-called complete biliary fistula, I was obliged to return 6 to 8 ounces of fistula bile to the duodenum before any showed in stool. And we have learned further that in absolute obstruction there is litthe reason to believe that much bile finds its way into the intestine by way of the intestinal mucosa, for a tube deep into the small intestine does not bring it up.

Therefore with knowledge of the output of bile in stool and knowledge of amount in blood, we have a good idea of the amount of bile formed by the liver and where it is going, and that is useful in the study of a case of jaundice.

From the animal experiments mentioned and from seeing many clinical problems, I am impressed with the following points as to the behavior of bile pigment as a staining agency in the body.

That it is commonly present in the blood of normal individuals, in varying amounts. It may be there in simple solution or in combination with protein—when in small amounts always in combination with globulin—when in larger amount with both globulin and serum albumin.

Being so disposed in the blood stream, it must reach a certain concentration before it escapes to the tissues to produce jaundice, and still larger amounts before it escapes through the kidney to produce choluria.

The proportion of bile in combination with protein to the bile in simple solution is variable, and varies with the rate of influx of bile into the blood; the slower the influx, the more there is in combination and the less in simple solution. When bile is rapidly passed into the blood, this proportion is altered and more is in simple solution.

Apparently an appreciable time is required for pigment to stain the protein, and if the rate of inflow is rapid much is in simple solution and little fixed to protein. To impress this point as illustration, see a rapidly developing icterus from complete obstruction; here bile appears in urine almost the same time it can be seen in the tissues. There is much pigment in the blood which protein cannot absorb; hence it spills through into the urine. An example of the slow staining process take chronic diseases of the liver where frequent small doses are thrust into blood over long periods of time. If the blood has ample time to take up pigment, then there may be a high degree of jaundice and cholemia without choluria; it is in this manner that acholuric jaundice occurs. I have shown that the pigment in so-called acholuric jaundice is not in simple solution, but always attached to protein, but I believe this sort of bile pigment is in no essential different from that that enters the urine.

Tissues may also in some manner absorb pigment, but never in excess of blood; that means that tissue jaundice never exceeds blood jaundice. Even where jaundice is rapidly clearing, the blood shows the staining longer than do any tissues. Consequently it is inconceivable to ever find a jaundiced individual without cholemia. Frogs when dehepatized may be an exception to this, but dogs and rabbits have not been.

Realizing that pigment exists in blood in combination with protein before it does in simple solution and that only in simple solution can bile pass through the kidney, we see why choluria is impossible without cholemia. Also knowing that bile rapidly thrust into blood can remain in simple solution for a time before blood can take it up and dispense it to tissues, we see how choluria may result from this excess before jaundice of tissues is visible. Dogs may be an exception in this respect that choluria happens very commonly without apparent cause, for there may be a very low threshold for pigment at the kidney.

Urobilin, although much studied and little understood, occasionally occurs in blood and very often in urine. It is apparently a much more diffusible substance, and only when produced in enormous amounts or when the kidney is seriously damaged is it found in blood. From my limited experience I venture to say that it is so readily diffusable that it rarely is retained in blood in sufficient amount to be detected, although large amounts appear in urine. It can occur in blood as a colorless substance. It may contribute to the yellow color of urine, but not until urine has stood in air and light for a time. It is not a cause of jaundice. In all cases studied, where urobilin was found in urine or blood, and jaundice existed, bilirubin also was found sufficient alone to cause the jaundice. Using the methods described, the following clinical conditions were studied and results obtained.

CHOLELITHIASIS WITHOUT OBSTRUCTION

Nothing has been discovered to aid in the

diagnosis of gallstones that produce no obstruction.

CHOLELITHIASIS WITH OBSTRUCTION

Obviously it is impossible to time the onset of obstruction or the degree of obstruction. Taking colic as the sign of obstruction, 12 to 24 hours are required before pigments occur in blood. If obstruction is complete and persists, choluria may appear within 24 hours and be coincident with jaundice. Few patients enter the hospital so early as 24 hours after onset of colic; so these figures are gathered from few and scattered cases. If obstruction persists and cathartics are given, the second stool may be pale and the third acholic. As days go on, cholemia and jaundice and choluria increase, while acholic stools continue. Granted that the liver has not been previously damaged and obstruction is complete, jaundice continues to deepen and choluria increases until the patient is green. Apparently obstruction of short duration—weeks—does not inhibit secretion of bile, and patients uninterrupted go on and die with daily increasing jaundice. In this situation the liver may not be much increased in size and may not be tender. When this obstruction relieves itself, the first change is in the stool. If obstruction is completely released, urine begins to clear—then blood and tissues together—the blood clearing last.

When obstruction is partial or intermittent, jaundice may be stationary for days or weeks; if infection is present, as often is the case, the liver enlarges and the secretion of bile diminishes in total amount. In partial obstruction a balance may be found where kidneys are able to remove bile as rapidly as it is formed, but this is always while the patient is deeply jaundiced.

In obstruction of very short duration, as in colic lasting a few hours, there may be no abnormal distribution of pigment whatever. At any event examination of blood after attacks of abdominal pain have been of little value in diagnosis of cholelithiasis when obstruction may be absent or of short duration only. Urobilin rarely is present in urine and never in blood in obstructive lesions. Rarely is it present in urine as a result of cholelithiasis alone. One rule of procedure that urobilin never violates is to appear in urine when not in stool. In intermittent or partial obstruction, when there is bile in intestines and liver is enlarged, urobilin often appears, but not in large amounts.

CATARRHAL JAUNDICE

Catarrhal jaundice at onset invariably resembles obstruction, but may not be abrupt —stools may take a week to become completely acholic—during this time jaundice and cholemia are stationary. Stools may keep acholic for a week and in this time jaundice continue to be stationary, but urobilinuria which was present at the onset disappears. As improvement takes place, bile comes back into stool, disappears from urine and gradually fades from blood, but urobilin in the meantime increases in the urine. Following an attack of catarrhal jaundice and in the period of fading jaundice, there may be unusually large amounts of bile in stool and much urobilin in urine. This may never occur or may last but a few days.

Catarrhal jaundice may never show acholic stools, but only a degree of hypocholia, in which case the degree of jaundice likewise is mild. When stools become completely acholic, jaundice and cholemia are generally marked—never as severe as in common stone or carcinoma of the ducts —but there is enough correspondence between the fall of intestinal bile and the rise of cholemia that obstruction is very plausible. On the other hand, the apparent suppression of bile secretion at times, together with the incidence of urobilinemia, indicates more than obstruction—that is, considerable disorder of liver parenchyma.

LAENNEC'S CIRRHOSIS

There may be gross deformity of the liver without anomalies of pigment. Most of the cases observed were jaundiced. Out of 18 cases which I reported in 1918, 5 showed a distinct diminution of bile in stool, while blood showed an increase, thus indicating a degree of obstruction. None showed intestinal acholia. With acute exacerbations of jaundice, situations arise resembling catarrhal jaundice. Three cases showed a marked falling off of bile from the stool, at the same time with diminishing amounts in blood and none in urine. This proved definitely a failure of production of bile—something quite foreign and perhaps impossible in pure obstruction. This illustrates what can be done in obscure cases of jaundice to work out the problem, once we become familiar with a large group of cases.

HANOT'S CIRRHOSIS

Three well established cases were studied in 1918 and several less marked cases since. Here it is amazing how great may be the evidence of liver disease as shown by size and shape of liver and spleen, and how little disturbance in pigment function results. Several cases showed intestinal hypocholia —at the same time with moderate icterus and no bile in urine. I think the principal disturbance in pigment here is a diminished production.

PNEUMONIA

Jaundice, cholemia and choluria may be very high and the onset abrupt, as in obstruction, but of the many cases studied, none ever showed intestinal acholia or even hypocholia. A large number showed quite the contrary, a marked increase in stool output. There is an overproduction in pneumonia. Many showed what is very unusual, a large amount of urobilin in blood and urine. None showed urobilin in blood without urobiluria. None showed urobilinuria without icterus. The appearance of so much urobilin in pneumonia is very puzzling and very interesting. It suggests that along with the overproduction of bile there is disorder of liver function. Neither the location of the pneumonia nor the severity had any relation to icterus. The type of infection was almost invariably shown to be pneumococcus. Icterus in pneumonia seems to be a particular manifestation of pneumococcus infection. In many respects it resembles pernicious anaemia and malaria, except that we could detect no destruction of blood cells or disappearance of hemoglobin.

PERNICIOUS ANEMIA

Jaundice here is always mild, always chronic. Nearly all cases, whether or not jaundiced, show a moderate degree of cholemia; not ONE showed choluria. All showed normal or excess bile in stool. The highest stool values ever found have been found by us, as by others, in pernicious anaemia. There is here an overproduction of bile and an *unnatural substance* formed, as shown by much urobilinemia. Strange to say, although many were jaundiced to quite high degree, and much bile appeared in stool, never was there choluria. Apparently in this case the chronicity and slowness of the staining process permits all the pigment to be fixed to the serum so that none can be filtered through the kidney. The kidney function for other dyes was frequently tested and little disturbance found.

Urobilin in pernicious anaemia shows its characteristic behavior—that is, much in urine and stool, but none or very little in blood. Apparently it all leaks through the kidney so rapidly that it cannot be detected in blood. One must conclude, therefore, in pernicious anemia that, although the lemon-yellow color is due to bilirubin—bilirubin never shows in urine—and that the urobilin, which is so abundant in stool and urine, never makes the patient yellow.

SECONDARY ANEMIA

No jaundice apparently results from anaemia alone, for in uncomplicated anaemia the plasma is normal. It is true that many were suspected of jaundice, but this unnatural color is a result of pallor. In the pallid individual the natural pigmentation of the skin is exaggerated by contrast and jaundice is not real.

TAENIASIS

Four cases of infestation with fish tapeworm have been studied and cannot be differentiated from pernicious anaemia by the distribution of their pigments. Other cases of taenia showed no characteristic findings.

EMOTIONAL JAUNDICE

This I mention merely to say I have never seen it and do not believe there is such a thing. At least, it is inconceivable that from emotion or from any other agency one can instantly, as is said, become deeply and completely stained with bile pigmment. Dogs, when injected with impossibly large doses intravenously, require an appreciably long time for bile pigment to diffuse out of the vessels into lymph spaces to produce jaundice.

SALLOWNESS AND BILIOUSNESS

Women patients tell me they are jaundiced for a few hours of the day, or that an attack of jaundice lasted but a few moments. Others say that they are bilious and have a yellow complexion when constipated. Very few of these same people show abnormal pigment in blood, and none in urine. If they do look yellow, it is due to transient pallor, probably a vasometer phenomenon. At least, they have not proven up as really jaundiced.

I have studied but one case of acute yellow atrophy, and that prior to my observation behaved as catarrhal jaundice, but a rapidly increasing jaundice and cholemia accompanied by collapse, sent her to hospital as a case of obstructive jaundice. I was deterred from having her operated by the fact that her rapid increase in jaundice was not accompanied by complete intestinal acholia, and autopsy a few days later disclosed the real condition.

I feel that we have not had opportunity of studying this condition often enough to say more. For the same reason I hesitate to say anything about congenital family icterus, Weil's disease, malaria and yellow fever. Icterus neanatorum also does not come to our hospital.

This occasion does not permit me to do more than describe how jaundice might well be studied. Before I can profitably take more time, more cases must be studied.

I can summarize best by going over again the schemes whereby the most pointed problem may sometimes be solved—that is the

differentiation of obstructive jaundice from nonobstructive.

In obstruction, bile pigment appears first in blood, then in tissues and in urine; meanwhile it disappears from stool. In pure obstruction it continues to increase as time goes on, for obstruction does not materially inhibit the formation of bile.

In nonobstructive jaundice of rapid onset, stools are not acholic. When of slow onset, stools may be hypocholic, but when so, blood and tissue jaundice is not increasing, for in this situation pigment formation is diminished and blood and tissue jaundice is either stationary or actually decreasing. Their diminishing formation means liver disease.

Urobiliruria also means liver disease. Acholuric jaundice means liver disease, but this liver disease may be due to intermittent obstruction and infection, such as cholelithiasis.

DISCUSSION

DR. L. M. WARFIELD, Ann Arbor: It has been exceedingly interesting to hear Dr. Blankenhorn talk about jaundice, as it is always interesting to hear anyone talk about the subject upon which he has worked for a long time and upon which he speaks with real authority.

There is one question I would like to ask Dr. Blankenhorn. In the first place, does he consider the qualitative test for urobilin in the urine as performed with the Ehrlich reagent of real clinical value? In the second place, is it possible to gauge in any way the amount of liver damage by the simple qualitative test and the color reaction with this reagent?

There has been so much said pro and con about the diagnostic value of urobilin in the urine that although I heard him say a few moments ago that urobilin was increased in the urine where there was liver damage, still I would like to hear him say a little more definitely about this in answer to the question asked.

I certainly have enjoyed this paper very much.

DR. M. A. BLANKENHORN, Cleveland, Ohio, (closing): In answer to the first question, I feel the qualitative test of urine is of mighty little clinical use. I think it is for much the same reason that for a long time simply the fact that a patient was jaundiced was of little use. We didn't know much more than that the patient was yellow. If we study it long enough, it may become of value.

Taking a situation like pneumonia, I believe we get our very highest determinations in the urine in pneumonia. Certainly the highest in the blood. We acknowledge that the liver may be damaged to a certain extent very acutely by pneumococcus infections. Yet there is no permanent damage at all.

In pernicious anemia, where we get tremendous amounts of urobilin, the liver shows damage. I have no way of making an estimate of the functional capacity of the liver. A patient may come in with a liver the size of two fists and be two weeks ahead of his demise. We apply liver function test and in two weeks he may die and we find a liver as big as two fists. And we thought all the while he had a liver perfectly good for any emergency.

RESUSCITATION FROM ELECTRIC SHOCK*

(Universalize the One Best Method.)

W. L. FINTON, M. D., F. A. C. S.
JACKSON, MICHIGAN

Resuscitation from electric shock has lately received considerable interest and publicity. A short time ago The American Medical Association joined the National Safety Council and the National Electric Light Association, in putting this subject before the public. And, as you know a Resuscitation Symposium was given at the last meeting of the American Medical Association.

This subject may seem to some rather commonplace, but a wide survey of the state has shown a general lack of practical knowledge not entirely confined to non-medical persons.

While we are daily reminded of the number of deaths from automobile accidents, we should not overlook the deaths from drowning, gas axphyxiation and electric shock. About 10,000 lives are lost annually in the United States through this class of accidents. Such fatalities are generally given less prominence in the newspapers, but continue to occur steadily throughout the year. Insurance authorities estimate that modern methods of resuscitation, promptly applied, would have prevented 70 per cent of these deaths.

Having been for some time associated with a large utility corporation, supplying electric power and light to various communities, scattered over a wide area, we have become somewhat familiar with electric shock cases, and realize the need of teaching resuscitation to laymen as well as physicians. Electric service has become today one of the first essentials in the life of civilized man. After food, clothing and shelter, mankind living in cities, gets more comfort and help from electricity than from any other of life's commodities. (Today the public utility industry is the third largest industry in the United States in amount of invested capital.) The larger percentage of persons whose deaths occurred from electric shock and lighting could have been saved had their associates been *workingly* familiar with the prone Pressure Method of Artificial Respiration.

Low voltages up to about 220 volts cause fibrillation of the heart, while high voltages cause paralysis of the respiratory centers.

*Read at Annual Meeting, M. S. M. S., Mt. Clemens, Sept., 1924.

There is no divergence of opinion as to the urgent need for immediate action; i. e. Prone Pressure Artificial Respiration should be applied promptly and continued in a proper manner. This must be thoroughly tried out, before any attempt is made to transport the patient to the hospital.

HISTORY

In 1908, Prof. E. A. Schafer of Edinburgh read a paper on his Prone Pressure Method before the American Medical Association. The conclusions reached were, "that, a pressure method is best and that such a method is more efficient with the patient in a prone position and with the pressure applied vertically over the lowest ribs." (see illustration), While his method was known and employed in this country before 1908, it gained but little headway over the other methods until the various commissions of the National Electric Light Association adopted the Shafer method as standard. Up to this time when an emergency arose a number of methods were frequently tried for short periods of time, with resulting confusion and high mortality. After fifteen years of successful achievement the Prone Pressure Method has come into use as the method of choice for artificial respiration.

"OUT-GAS"

While slowly saying "OUT-GAS," lean forward slowly with arms straight, so that your weight is placed on the patient's lowest ribs. This should not be a violent motion.

"IN"

While saying "IN," remove weight and swing back quickly.

"COMES-AIR"

While saying "COMES-AIR," rest; all pressure should be removed from patient's ribs.

This method of artificial breathing is very simple and easy to learn. Repeat it slowly, about which means breathing out and in, should take twelve times a minute. A complete respiration, five seconds. GO SLOWLY, time yourself, one second to each word.

OUT—GAS—IN—COMES—AIR

The following is quoted from a letter by Prof. Schafer written in response to a recent inquiry.

"The Prone Pressure Method has been adopted *exclusively* for about twelve years by the Royal Life Saving Society, the only important organization in the British Empire whose object is the resuscitation of the apparently drowned. It has also been adopted for several years by the London and other police forces, by the Board of Trade and by the Army and the Navy. The most important thing in cases of electric shock or drowning is to have something ready which *any* man can use; which will effect respiratory exchange—whether exactly as much as normal, matters very little."

TECHNIC

The technic is well known to you. The patient is placed prone. The mouth is quickly cleaned of foreign bodies. The patient's arms are outstretched, one under the head.

The operator kneels straddling patient, just below the hips. He places the palms of his hands with thumbs close to the fingers and the fingers parallel over outer end of the two floating ribs, well out from the spine, *the small fingers resting on the lowest ribs.*

With arms straight and bending only at the hips the operator compresses, releases and swings back. This is repeated about twelve times to the minute. Swinging forward and compression should occupy two seconds while swinging backward and resting should take the other three seconds of a five second period.

FIVE SECOND PERIODS

1 Out	2 Gas	3 In	4 Comes	5 Air
Lean forward, not violently, applying weight to patient.		Remove weight and swing back quickly.	Rest	

In the report of the resuscitation Commission appointed jointly by The American Medical Association, the American Institute of electrical engineers and the National Electric Light Association, and in which the technique of the Prone Pressure Method is elaborated, it is advised that "Persons receiving artificial respiration should, as much as possible, be kept warm, and the artificial respiration should be maintained until spontaneous breathing has been permanently restored, or as long as signs of life are present. It was first thought that in cases where there is no sign of returning animation, artificial respiration should be kept up for an hour or more. Later experience

has shown that there is hope in some cases where there is little or no indication of life after a much longer period of time. One case has been reported where life was restored after three and one-half hours of effort, and it is recommended by the commission on Resuscitation from Electric shock that artificial respiration be kept up for four hours unless rigor mortis has definitely set in.

A considerable number of cases of electric shock have been restored after one and one-half hours of work. Gas poisoning cases have required artificial respiration for as long as nine hours. Signs of life and shallow breathing had of course been elicited before this time, but disappeared as soon as artificial respiration was stopped. It is of the utmost importance that artificial respiration be started promptly after the accident. The first few minutes may decide the matter of life or death of the patient, and certainly ten minutes of Prone Pressure respiration started early may be of more value than hours of effort later on.

On return of normal respiration the patient should be carried gently on a stretcher, put into a warm bed and treated with the same care as in traumatic or surgical shock. The heart has been put to a severe test, and even letting patients *sit up immediately* has resulted in death.

POPULAR MISCONCEPTIONS

Many still resort to the practice of tapping the soles of the feet or apply "countershock" in various ways, such as picking the patient up and dropping him several feet. Correspondence with prominent industrial surgeons has shown a difference of opinion on this point. Many feel that such procedures are unsurgical, while others hold that moderate stimulation, even dropping the patient a short distance, may be of real value. It is certain however, that such rough procedures as rolling the patient on a barrel and repeated drastic efforts at artificial shock are obsolete and contraindicated. The patient should never be made to walk as soon as he is revived.

Unfortunately extensive advertising has made the majority of lay individuals and many physicians seek mechanical devices in cases of electric shock and drowning. There is still an insistent popular demand, reflected in the attitude of civil authorities, for mechanical devices for artificial respiration.

ATTITUDE OF POLICE AND OTHER CIVIC AUTHORITIES

When emergencies arise, civic officials, particularly of the fire and police departments, are usually at hand or among the first to arrive. While skilled in handling ordinary accident situations, experience has proven that a majority of their members are woefully deficient in the training necessary for the resuscitation of unconscious persons. Here is a broad field for missionary work. The public utilities have taken this matter in hand and have given instructions in the Prone Pressure Method to many civic employes, but this is a matter in which the medical profession should also come to the front and see that the firemen and the policemen in the various communities are given these instructions, and that the efficacy and importance of the Prone Pressure Method is fully understood by the public.

As examples of this civic mis-conception, picture the following actual cases. A lineman in one of our larger Michigan cities received a severe electrical shock. According to the signed statements of his fellow employes, work was begun immediately on the unconscious man and after fifteen or twenty minutes application of the Prone Pressure Method he was breathing nicely and his color was good. There was every reason to believe that he would survive. Then the police arrived with a pulmotor and took charge. They insisted on using the pulmotor. The victim immediately changed color, became black in the face and ceased breathing. After twenty minutes the doctor had them resume the Prone Pressure, which was kept up until the doctor pronounced the man dead.

In another city in Michigan a workman received a severe shock and was seriously burned by contact with an energized high potential conductor. The Prone Pressure Method was immediately applied by his foreman. A physician was called and on arrival pronounced the man dead and ordered the efforts to resuscitate him stopped. The foreman refused to do this, on the ground that if the man was dead no harm could be done to him, while if he still had a spark of life there was a chance of saving him. The foreman continued his efforts until, after a considerable time the man was restored to consciousness. Then the physician asserted that the patient could not live, but this man is still alive, and with the exception of the loss of one arm, amputation of which was necessary from the effects of the burns, is in excellent health.

Another case in point is that of a man in one of our eastern states, who was pulled out of a river in an unconscious condition. A crowd quickly gathered and a police officer was doing his best to maintain order when a schoolboy edged in and announced that he was a boy scout and knew how to apply the Prone Pressure Method to restore respiration. He was gruffly ordered away by the policeman. Just at that moment the boy caught sight of the

unconscious man and recognized him as his own father. His insistance, supported by the sympathetic attitude of the bystanders, overcame the policeman's objections and the boy set to work. He was interrupted by the arrival of the ambulance. The attending physician pronounced the man dead and ordered the body to be removed. The boy, knowing that this was not the time to give up, and having the courage of his own convictions, insisted on going with his father and working on him in the ambulance. This was permitted, more in the spirit of tolerance than in the hope that any good would result, yet the boy succeeded in restoring his father to consciousness before the ambulance reached the hospital, bringing him back, literally, from the very shadow of death.

In fact there are hundreds of cases every year in which the attitude of our civic representatives varies only in detail from these. They go to show the necessity for the broad dissemination of knowledge of the Prone Pressure Method among our civic officials.

It is possible that physicians sometimes make the above mistake because of the fact that the patients whom they are accustomed to see stop breathing, are truly and permanently dead? "While in the class of cases under discussion the patient can be compared to a good automobile, which is stalled and only needs cranking." A hypodermic in these cases is of no value whatever.[1]

Because of the above and other similar experiences we have found, in several instances over the state, that when electric shock cases occur, there has been a marked hostility on the part of workmen toward the doctor, for fear he was going to oppose the Prone Pressure Method. We mention this, not in the spirit of criticism, but so that we may know what to expect when called on these cases. Many of these workmen have been instructed and trained in this method by their employer and they feel that there is something radically wrong with the doctor who does not permit the use of Prone Pressure on an unconscious fellow worker. We physicians can correct this attitude, and are correcting it, by assuring such men that we do approve of the Prone Pressure Method in cases where its use is indicated, and by encouraging the men to drill regularly and be prepared for the emergency when it arises.

EXPERIENCES (OF PUBLIC UTILITIES) WITH MECHANICAL METHODS OF RESUSCITATION

For twelve years the Public utility with which we are associated kept mechanical devices, either pulmotors, or lungmotors, or both, at each of its larger stations. In the thirty-two cases in which these devices were used during the 12 years, only one case recovered, and there is considerable question, as to whether or not he would have recovered without the treatment, inasmuch as he was able to climb down the pole unassisted after receiving the shock before collapsing. Like many other corporations, we have scrapped all of our mechanical devices in favor of the Prone Pressure Method.

In many of these cases, but patricularly in poisoning from illuminating gas, the administration of CO_2 (5 per cent) with oxygen (95 per cent) is of decided benefit. The condition of acapnia is more quickly relieved. However, Prone Pressure must be started immediately and kept up and no time should be lost in waiting for respiratory supplements as carbon dioxide, oxygen or aromatic ammonia.

Dr. Yandel Henderson of Yale recently reported that the use of carbon dioxide with oxygen in cases of alcoholic coma had entirely eliminated the pneumonia, of which complication, up to that time 33 per cent of the cases had died.

ADVANTAGES OF THE PRONE PRESSURE METHOD

The advantages of the Prone Pressure Method are well known, but a brief summary may be in order.

1. Prone Pressure is very simple, it is easy to learn and easy to apply.
2. It needs but one operator. It is the only one man method, and it can be applied by anyone who can work continuously for an hour or more. There is no need of a second person to hold out the tongue, as is the case with the Sylvester and other older methods.
3. It is usually immediately available. No time is lost while waiting for mechanical devices, or attempting to repair them when found out of order, as is frequently the case. They are, at best, inadequate and unphysiological.

We timed a man who had some years before used a pulmotor on a few occasions, and found that it took him six minutes to refresh his memory and get the machine working, and then it leaked badly.

All mechanical breathing apparatus is subject to rapid deterioration, especially in the numerous parts that are made of rubber. Leaks and breaks are common, so that without frequent inspections and replacements they are not serviceable.

4. The Prone Pressure Method is more effective than any other method of resuscitation. With normal deep breathing taken as a 100 per cent, the Sylvester method gives about 35 per cent (175 cc.) of normal ventilation of the lungs, while in the Prone Pressure

1.—Symposium on Resuscitation—American Medical Association—Dr. Yandel Henderson, et. al.

Method 105 per cent (515 c.c.) of the usual tidal air is exchanged at each manipulation.

This method elevates the diaphragm and forces blood from the liver and splanchnic area to the heart. The heart, which is always contracted (empty) in electric shock, is thus filled and the cardiac function stimulated, holding out the great prospect of restoring animation.

5. There is less danger of rupturing the lungs and blood vessels than in any of the mechanical methods. Mechanical devices require a degree of pressure to inflate and of suction or vacuum to empty the lungs, that is incompatible with physiologic breathing. Prone Pressure more closely simulates natural breathing than any other method of artificial respiration, manual or mechanical.

DISSEMINATION OF KNOWLEDGE OF THE PRONE PRESSURE METHOD

All employes of public utilities and other industries in which extensive use is made of electrical energy should be, and very generally are, instructed and drilled in the Prone Pressure Method. When each man feels that his life may depend on the other fellow knowing how to do this, he is going to learn it himself and see that the other fellow also learns it. Truly in this instance each man gives an affirmative answer to the question; "Am I my brother's keeper."

Besides electric shock, drowning and poisoning, one should bear in mind that artificial respiration may be useful in unconsciousness from blows on the head, "cave ins," drug poisoning, such as morphine, freezing, and the ever increasing, carbon monoxide poisoning from gasoline motors.

A bill was introduced last February in the Senate of the State of New York to make the teaching of the Prone Pressure Method compulsory in the public schools. Many large organizations, including the American Red Cross, the Boy Scouts and the Campfire Girls, teach this method as part of their regular first aid program. It is also standard in the Army and Navy and, with some modifications in the Coast Guard.

It is not sufficient merely to know what Prone Pressure is. Every person, phyiscian and layman, boy scout and campfire girl should *practice* it, and become so proficient that when the day comes for its use they will comport themselves in a manner consistent with modern scientific attainment.

Seventy per cent of the successful cases of resuscitation were performed by the workmen themselves. This is of course because of the availability of the fellow workman. Therefore it is incumbent upon all industrial physicians, and in fact upon all physicians, many of whom have long used the Prone Pressure Method, to *advertise* it and to *teach* it to the public.

In this important measure for public safety and the saving of life, physicians have a truly patriotic duty to perform, for the more laymen who are trained in this simple and effective first aid measure, the fewer fatalities there will be from these accidents, for the relief of which artifical respiration is an immediate necessity.

DISCUSSION

Dr. ROBINSON, Jackson: I haven't very much to say about the paper. It was excellent. I have used the Sylvester method more than the other perhaps. It was earlier. We used it more. I never had any good results from its use. I have with the method described.

The pulmotor appeals to the people, and you will be always urged to use it. It is something mechanical and it is something advertised. That is about all there is about the pulmotor, the advertising. I have not seen it work well in any case I have tried.

We have with us today the secretary of the National Electrical Association that has the accident part in charge and has been in that work for about ten years. I believe if he were allowed to say something it would be helpful. He is not a physician but has had probably more experience than all of us together.

MR. H. J. BURTON, National Electrical Association: He said I was secretary of the National Association. I am chairman of the Accident Prevention Committee of the Great Lakes Section. I am an electrical engineer. I have had a lot of experience with electrical shock cases.

I thoroughly endorse everything Dr. Finton has said.

I can quote you a number of successful cases where men have received electric shocks, as much as 70,000 volts, burned very severely, and have been resuscitated by this method in a few minutes.

I can quote cases of boys climbing poles and receiving electric shocks and being resuscitated by this method.

Years ago a small boy, about five years old, climbed a fence and in some way got in touch with a low voltage circuit. His mother was called. She couldn't do anything to save him. She attempted to, but got a slight shock herself. Then a substation operator near by grabbed this boy by his clothes and pulled him off. In about twenty minutes he resusitated him.

There are several cases where it has been applied successfully. Two weeks ago, two boys were resuscitated. I have known of several cases where the method has been put in practice by fellow employees and it has been interfered with by physicians. They said it was of no use and have sometimes stopped the method from going on. Whether or not they would have died of course is not known.

I certainly appreciate this opportunity as a layman to say a few words at this convention.

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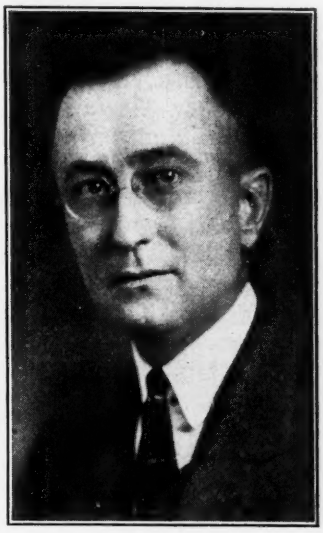

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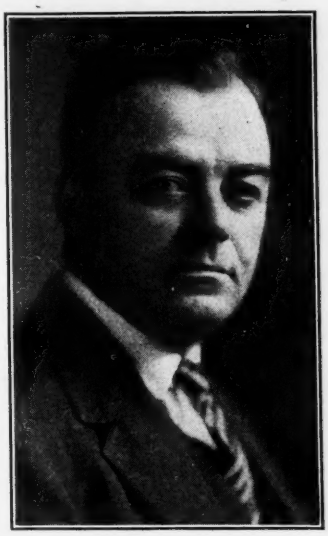

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The Journal
OF THE
Michigan State Medical Society
ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

PUBLICATION COMMITTEE
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Grand Rapids, Michigan

Entered at Grand Rapids, Michigan, Postoffice as second class matter.
Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized August 7, 1918.

All communications relative to exchanges, books for review, manuscripts, news, advertising and subscriptions are to be addressed to F. C. Warnshuis, M. D., 4th Floor Powers Theatre Building, Grand Rapids, Michigan.
The Society does not hold itself responsible for opinions expressed in original papers, discussions, communications, or advertisements.

Subscription Price—$5 per year, in advance

DECEMBER, 1924

Report Malpractice Threats Immediately to Doctor F. B. Tibbals, 1212 Kresge Building, Detroit, Michigan.

Editorials

HOLIDAY GREETINGS

On opening this issue of The Journal, the holiday season will still be some three weeks away. In extending our annual greetings at this time we are hopeful that we may pave the way for an unusually happy festive week and for which we are extending to our members, readers and advertisers hearty good wishes and greetings.

Every moment some form grows perfect in hand or face; some tone on the hills or the sea is choicer than the rest; some mood of passion, insight or intellectual excitement is irresistibly real and attractive to us—for that moment only. Not the fruit of experience, but experience itself, is the end. How shall we pass most swiftly from point to point, and be present always at the focus where the greatest number of vital forces unite in their purest energy? While changing processes melt under our feet, we may well grasp at any exquisite passion, or any contribution to knowledge that seems by a lifted horizon to set the spirit free for a moment, or any stirring of the senses, strange colors, and curious odors, or the work of an artist's hands, or the face of one's friends. Not to discriminate every moment some pleasing attitude in those about us, and in every brilliancy of their gifts some tragic dividing of forces on their ways, is, on this short day of frost and sun, to sleep before evening.

So for this holiday season we proffer the wish that each will cast about him and, viewing man, man's work, nature in her varying forms, labor, duty—in fact, all that goes to make the individual, life and environment of human beings, that in these he may find the good, the true, the inspirations, the ideals that will create a new feeling within him, the sustaining joy and hope of a brotherhood with mankind. Then, permeated with that spirit, enter in upon the festive holiday season with a contentment and joy that will make for a Merry, Merry Christmas. That is our wish to all.

REGIONAL CLINICS

Your Council and officers are demonstrating their mindfulness of your interests and wishes. Plans are rapidly developing for a series of District Clinics throughout the state. To put on these Clinics requires a vast amount of detailed work. It is hoped that two can be conducted during December. The one conducted at Traverse City in November is reported in this issue.

With the New Year it is anticipated that our plans and teamwork will be so perfected that one can be conducted every week during January and February.

Permit us to reiterate that these Clinics are calculated to be instructive. To accomplish the greatest good the help of the members in each district is desired. We must have your support, attendance and participation. Our Executive Secretary, Mr. Smith, will conduct the preliminary arrangements by correspondence. He will appear on the scene two or three days in advance to complete the final details. Lend him your every support.

The men on the program are not out on an advertising trip. They are contributing their time and labor in your behalf. They are losing business at home to aid you. Your excuse of business or loss of business for non-attendance is not valid. You will do more business and better business if you take the day or two days to be present.

Inasmuch as it is also purposed to hold a public meeting and to impart to the people of your vicinity, facts and truths regarding scientific medicine, you are urged to invite your patients and friends to attend that public meeting. We want your patrons to know that you are remaining abreast of the times and we also want them to know

what modern medical practices accomplish.

We repeat: Attend these Clinics, participate in them. Your neighbor is going to, and you cannot afford to let your people know that he is forging ahead of you and becoming a better doctor. Finally, you are put to no expense, for this is one of the benefits you derive from being a member of your County Medical Society.

A WARNING

Evidently through typographical oversight a dangerous error is found in the 1924 edition of Sajou's Analytic Cyclopedia of Practical Medicine, Volume 4, page 281. In discussing the administration of toxin-antitoxin we find the following:

"All infants below 12, and if possible below 18 months of age, should, the writer thinks, be actively immunized with 3 doses, each 10 c.c. of toxin-antitoxin. These injections should be given irrespective of the Schick test the infants may show at the time of immunization. The injections are given subcutaneously in the arm or below the angle of the scapula, and repeated every seven days. The toxin-antitoxin is well tolerated by young infants, and for that reason the dose advised is the same as that given to older children. The relatively larger dose of toxin-antitoxin will, of course, also give rise to a better immunizing response. All children over 18 months of age, as well as all youths and adults, should be tested with the Schick reaction first, and only those giving a positive reaction, immunized with toxin-antitoxin. Three injections, each 10 c.c., are given subcutaneously, one week apart."

The 10 c.c. should be 1 c.c. . A dosage of 10 c.c. would be fatal for the infant or child. We therefore issue this warning, and trust that no member will be mislead by this unfortunate typographical error.

THE COUNCIL

For the purpose of record as well as to acquaint our members with their Councilors, we are publishing in this issue the pictures of the personnel of this executive body. For the further imparting of information we repeat the Constitutional and By-laws provision setting forth the authority and duty of the Council and Councilors.

CHAPTER VII.—THE COUNCIL

Sec. 1. The Council is the executive body of the Society. It shall determine its own time and place of meeting. It shall elect its own Chairman and Vice-Chairman to serve one year. Its annual meeting shall be held co-incident with the annual meeting of the Society.

Sec. 2. Collectively, the Council shall be the Board of Censors of the Society. It shall consider all questions involving the right and standing of members, whether in relation to other members, to the component societies, or to this Society. All questions of an ethical nature brought before the House of Delegates or the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or of a county society, upon which an appeal is taken from the decision of an individual Councilor.

Sec. 3. It shall make careful inquiry into the condition of the profession of each county in the state, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist and for organizing the profession in Counties where Societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse between physicians of the same locality and shall continue these efforts until every reputable physician of the state has been brought under the Society's influence.

Sec. 4. It shall, upon application, provide and issue charters to county societies organized in conformity with the spirit of this Constitution and By-Laws, and revoke such charters when deemed necessary.

Sec. 5. In sparsely settled sections it shall have the authority to organize the physicians of two or more counties into societies, to be designated by suitable names so as to distinguish them from district and other classes of Societies. These Societies when organized and chartered, shall be entitled to all the privileges and representation provided herein for county societies, until such counties may be organized separately.

Sec. 6. The Council shall direct and control the publication of the Journal.

Sec. 7. The Council shall approve the expenditure of the funds of the Society.

Sec. 8. The Council shall appoint the members of the Medico-Legal Committee and supervise the duties and work of that Committee.

Sec. 9. At such annual meeting the Councilors shall report to the House of Delegates on the Society work that has been carried on in their respective districts during the preceding year.

The Society has intrusted to these men definite responsibilities. Each Councilor has expressed a readiness to acquit himself of the duties imposed. It remains for the memberhsip to render such support as will enable the Council to accomplish the purposes and activities of our organization. To that end we urge that officers and members of County Societies freely and frequently consult with the Councilor of their district. Discuss your plans, formulate your activities and outline a definite program of work. By so doing you will cause an increased dividend of benefits that you will derive from your membership. We are setting out on a serious and important program of state work. Its success will be determined by the degree of interest and expressed effort that you register.

SHALL WE?

The legislature of our state will convene in Lansing during the first week in January and will remain in session, for the politician's opportunity to grand stand, until April, May or June—it all depends how well time can be killed.

Among the many bills that will be tossed in

the hopper, we can expect that there will be several relating to public health, medical laws and the recognition of irregular, would-be practitioners of medicine. These latter groups will be seeking legislation to acquire the right to practice as they please. The question that confronts us is: Shall we make any effort to defeat unjust medical legislation?

We pass over the first principle that it is unjust to require one person to spend eight to ten years in study before he can practice and permit another person who takes a three-months or possibly a twenty-four months course, without pre-school requirements, to go out and practice along the same lines.

We pass by, also, the argument that these "Short-Cutters" are dangerous to the health and welfare of the people and that the public should be guarded against them.

We pass by the other arguments that have been advanced from time to time and present for your reflection the following: Shall we,

1. Refrain from all legislative activity in regard to cult practice acts?
2. Permit the legislature to handle the questions of granting cult recognition and let the ensuing baneful results be their responsibility to the public.
3. Remain content to let the facts of modern medicine justify itself and by educating the public as to these facts reveal the fallacies of these cultists.

These are the thoughts that are proffered for our members' discussion. We urge that you convey your opinions to your councilor or editor in order that a policy may be determined.

THE GORGAS MEMORIAL

During the past year, throughout the United States, the work of organizing the Gorgas Memorial State Governing Committees has been progressing. In some states the response has been most enthusiastic, while in others considerable effort has been necessary to bring home to the doctors, the importance of this movement to them, individually and collectively. Inasmuch as the Gorgas Memorial is primarily a medical movement and as such must have the united support of the profession if it is to make the proper impression on the general public, we take this occasion to outline briefly the Gorgas plan and to request the co-operation of our colleagues in bringing to a successful issue, this national health program.

We are planning to establish a Memorial for Crawford Gorgas, not of marble or bronze, but a permanent living organization in the form of a great health foundation typical of his work in research and curative medicine, that will unite lay men and doctors in an intelligent effort to obtain personal health—a health guild that will be supported and directed by the representatives of curative medicine.

The Gorgas Memorial consists of two phases:

1. An Institute in Panama for research in tropical diseases.
2. A health educational program in the United States and other countries that wish to co-operate and participate in the movement.

We are living in an age when people are knocking at all doors of knowledge and demanding that they be admitted. In the field of medicine who are so well fitted to meet this demand as those actually engaged in the practice of medicine? The doctors have a far more interesting and important message to deliver than any other group.

In the United States to-day there is scarcely a community that has not its quota of irregular "medical practitioners," so called. In many states there are strong organizations of the representatives of the various cults, whose theories are imposed upon an uninformed public. Public ignorance is encouraged by professional reticence and the result is the astounding growth of unscientific methods. If the profession is to maintain the high standard to which centuries of labor in behalf of suffering mankind entitles it, it is essential that a definite organized effort be made to familiarize the public with such facts as will impress upon it the importance of medicine's contributions to human welfare. A constant fund of proper health information through the newspapers, magazines, lectures, moving pictures and the radio, furnished by medical men and women of known reputation and standing, will direct the public to the proper source for medical advice and gradually eliminate the irregular practices constantly increasing.

One of the objects of the Gorgas Memorial is to furnish a channel through which this kind of information may be disseminated. It cannot be done by individual physicians. It must be conducted by a dignified, ethical organization, controlled by the medical profession. The name of Gorgas is synonymous with "better health." No more appropriate name could be adopted for a movement that has for its object, *the development of co-operation between the public and scientific medicine for the purpose of improving health conditions by implanting the idea in the mind of every individual that scientific medicine is the real authority in all health matters and as such should be recognized as the source of health instruction.*

Before we ask the public for financial and moral support, it is essential that the doctors

of the country unite in support of this program. As a means to this end, Governing Committees are now in process of organization, on the basis of 100 members to every 1,000,000 population in each state. Seventy-five per cent of the personnel of each Committee will consist of medical men and 25 per cent of influential laymen and women. The permanent activities of the organization will be supervised by these Committees in their respective states, in co-operation with the National Executive Committees.

An organization cannot operate without funds. We are endeavoring to raise an Endowment of $5,000,000, the interest only of which will be utilized to carry on the work, The principal will be invested in trust securities and remain intact. None of the money thus obtained will be spent for buildings or equipment. The Republic of Panama has donated the site and guaranteed the initial buildings and equipment for the tropical research laboratories, in recognition of Gorgas' great work in Panama, Those invited to serve as Founder members of the State Governing Committees are requested, as they accept membership on the Committees are requested, as they accept membership on the Committee to subscribe $100 to the Endowment Fund, payable within two years. Every individual on the State Committee is a contributing member. When the medical nucleus of the organization is complete, a general appeal for funds will be made to the public.

The American Medical Association at its recent meeting in Chicago, passed the following resolution:

"RESOLVED, That the House of Delegates of the American Medical Association, convinced of the great promise which the Gorgas Memorial contains of benefit to humanity through improved knowledge of preventive medicine and tropical disease, and of its peculiar adequacy, as a tribute to our great leader and sanitarian, recommend to the organized profession of the country, through its constituent state and county societies, the enthusiastic support of the project."

J. A. Witherspoon, Tennessee
Joseph Rilus Eastman, Indiana
Thomas Cullen, Maryland
W. H. Mayer, Pennsylvania
F. B. Lund, Massachusetts.

The Memorial has also been endorsed by numerous other medical and civic organizations.

Every doctor is requested to take a personal interest in the Gorgas program and to see that his community is adequately represented on the State Governing Committee. Each County Society should appoint officially at least one of its members to serve on the State Committee. This is one foundation that is controlled by the practitioners of curative medicine and as such should be supported by every practicing physician. Let us pull together, "the doctor for the doctor." Farnklin H. Martin.

MEDICAL RESPONSIBILITIES

O. L. RICKER, M. D.,
Councilor 9th District
CADILLAC, MICH.

Mr. Chairman:

As Councilor of the 9th District, I am very glad to be with you at this time. The value of such meetings can not be estimated in dollars and cents, neither can it be estimated in value to the State Society. The coming together of physicians, and holding of such meetings as we are to have today is going to be the means of saving the medical profession for the public. Traverse City is a very desirable place for holding these meetings being almost in the center of the district.

The opportunities of medical organiations are abundant and important consequences of responsibility. The opportunities of the medical organizations are also numerous and important, for opportunity not only implies but also imposes obligations. This is especially true when applied to physicians in respect to our relations to each other, and to the public which we serve because they, more than any other group, can contribute the efficiency and happiness of men, or to the inefficiency and unhappiness. The greatest contribution can be made to human welfare only. This is the main purpose of the physician or of the profession as a whole, and it is not possible to define just what proper professional relations are except through the existence of combined and co-operative judgment and wisdom.

The outstanding opportunity and the outstanding responsibility of medical organizations is for the improvement of scientific knowledge for its members, and for their knowledge in application of that rule. There is, as I see it, but one real great outstanding opportunity before the medical organization today, and that is the adequate scientific service to all classes of people, of every belief and creed who may be in need of aid of a physician.

As a member of the Committee on County Societies of the State Council, I am very much interested in the work of the County Society. There is something radically wrong with the medical men of Michigan, and their relations to their County Society. Few medical men

*Delivered at District Post-Graduate Conference, Traverse City, Nov. 18, 1924.

give one-sixth of the time to the County Society that they give to other community obligations, and yet at the same time the community is expecting the medical profession to keep abreast with the advancing times. We sometimes forget that a great bulk of the medical profession are to be found in the hills and valleys of our state, whose only medical center is the County Society. Most of our Medical Societies have not more than 25 members, a great many of them having a less number even than that. We forget that sometimes the County Society with 15 or 20 members can not hope to keep up with scientific programs, and keep the interest in their members, for after a time they get tired of each other.

The Medical Society is an absolute necessity in our scheme of organization, which to my mind is theoretically perfect, and which when it is properly operated is practically almost perfect. The organization which I speak of is our state and national medical organization. We have to maintain medical societies because jurisdiction of the County Society is the jurisdiction which can not be wisely or safely turned over to that organization. But I have come to believe, after studying the County Society thoroughly and noting the success and lack of success, in the societies that the district conference is going to be the means of saving the County Society. Following district conferences, local societies should take up the organizatio nand preparation of programs which will carry these societies through the year. These conferences offer a splendid opportunity for improvement of the medical profession from the stand point of their knowledge of the art of medicine. They will also invoke a powerful stimulation on the County Medical Society at once. There is no reason why Manistee, Ludington, Petoskey, Cadillac, and other cities of equal size cannot furnish men who will aid in the carrying on of the work of the individual medical societies. These men may aid their local societies by furnishing them with short papers bringing out discussions. These men may be interchanged from the various local societies and thus receive the experience from the discussions of various doctors of various communities. Not only will this stimulate more scientific programs for district societies but we can not help feeling that by the intermingling of medical men, the social life will be brought out. Doctors will get to know each other better, and know what they can expect from each other. If I am refering a patient to the Manistee Hospital, for treatment for rheumatism, diabetes or any other condition, it is and absolute necessity that I know who the man is at that hospital who is doing the best work for that class of patients. And the only way I can find it out is by associating with the medical men, listening to the discussions which each man brings out on that particular subject and thus choosing one of those men who has the best there is to offer for my patient. And the same applies to Traverse, Cadillac and other cities. There is not a man in this audience who has not patients in every town in Northern Michigan, or at least has people who are asking him at different times during the year "in case I am sick, who can I go to?" And you can not tell him unless you know the medical men from the various cities.

Much has been said of organizing the public in forming a society for educating the public. I think this is being over done. There is probably a still greater need in educating our own members to render the service of the type which the public is demanding and the better relationship to which we should bear to each other, and the purpose and the individual effort that we must manifest in carrying out the work that we as doctors hold ourselves out for in the eyes of the public.

At this point it is necessary to say that the work of the doctors is difficult. I think it is an unfortunate condition to live in a community and meet somebody on the street almost every day, and we cannot talk to them. These troubles exist in almost every center in Michigan. The same people might talk to you when you are out of town but not in their own community. The only way to get away from this is by educating the doctor in the Medical Society or the district conference or through the national organization. Some education has got to be brought to bear upon the physicians in order that they may be of better service to themselves and the general public. I think the most of these troubles should be ironed out in the community in which the medical men are practicing together. Medical men are of a higher type than the men that should be fighting with each other and they sould be done away with.

We as medical men are having lots of trouble at the present time with cults without having too much friction amongst those who are supposed to be qualified physicians practicing in their local communities. I think that we can take no better recogniiton than the article which appeared in our own State Journal a few months back and which the information of the individual physician was involved. If the medical profession is to get anywhere it must be thoroughly organized until the majority of the physicians realize the necessity of a united profession. The state societies are firmly of the belief if the physicians would join together in the Medical Society as a united profession they

could demand and get the help which each needs. The entire organized profession could go far towards illiminating the cults in business and give to the public the first there is in scientific medicine.

It is the duty of all phyiscians to join the County Medical Society and it is the duty of all County Medical Societies to hold meetings. It is the duty of the physicians and the County Society to become familiar with its state board of health and all public activities which are being carried on in this county. The physicians should know something of the programs of each of these organizations. If the State Board of Health is working in your community it is absolutely necessary for the best interest of the medical profession and the best interest of the people whom you are serving, and whom are you supposed to represent that you know what this organization is doing. The same applies to the Red Cross and any other public health society. It is nobody's fault but the individual doctor and his Medical Society if things are carried on in his community which are not satisfactory to the organization. There is a lack of physicians in the rural communities, it is also true that there is a living for any physician in any city from 2,000 up in the State of Michigan if the physician will work. I feel that if a physician takes it upon himself to go in a community and inform the public that he is there for carrying on the work of his profession, then the public has a right to demand that he give a legitimate number of hours each day to serving the public. I do not feel that any physician whoever he may be has any right to hold claim upon a community in which he is not willing to do his part. I believe I am safe in saying this relative to the Council of the Michigan State Medical Society it is absolutely no reason why the nursing profession should go out into the rural districts and be dictators of public health activities. And there is the very reason that the physician is losing out in the great many cases in his responsibility to his patients through the combined efforts of those who wish to dictate the programs which may apply in cities but are not workable in rural communities.

Gentlemen, do not let me lead you to believe I am in discord with the activities of the State Board of Health or any public health activities. I am not. But I am for centralization and standardization of public health activities with the medical profession back of all such activities.

We need medical inspection of school; preventive medicine.

We need periodic examinations of adults as authorized by the A. M. A.

We need clinics for the examination of the tubercular and his contacts.

We need the survey of crippled children and many other activities. But all these should be under the direct supervision and co-operation of the medical men.

I feel that no organization has any right to come into a local community and bring with it discord to the medical profession. No organization has any right to prescribe or recommend for the care of any physician any case until they are familiar with what is being done for that patient by the local physician who is responsible for the care of such patients.

Is it any wonder you have the cults when the medical man is humiliated before the layety by some active public health worker who is not in harmony with all the medical profession and can do more harm than good?

So as I have said before—we as a medical profession should get together and see that the profession is recognized as it should be. We are the dictators of public health, why should we not dictate.

Let us put more activities into our local societies and thus give more support at state and national organizations, who in turn can give us aid in our many problems.

Thus a better doctor and a better medical profession.

NEW A. M. A. EXECUTIVES

The Board of Trustees of the American Medical Association convened in regular session in Chicago on Nov. 20-21st. The Board elecetted as General Manager of the Association, Dr. Olin West; as Editor of the Journal of the American Medical Association, Dr. Morris Fishbein; as Business Manager, Mr. Will. C. Braun.

Dr. Olin West, the new General Manager, is a Tennessee native, having been Secretary of the Tennessee State Medical Society, and health officer of that state. Four years ago he was selected as Field Secretary of the A. M. A. and became Secretary of the A. M. A. upon the death of Dr. Craig. He has so served for three years and since October has been acting Geenral Manager of the A. M. A. We feel certain that in electing Dr. West to this office the Board has voiced the wishes of the profession. Dr. West is not a stranger to Michigan doctors. He is a man of integrity and senses deeply his responsibilities. He is sincerely concerned with our organizational problems and purposes to solve these problems for the best interests of all. Seek as they have, the Board, in our opinion, selected a man who typifies the

ideals of medicine, the like of whom is not to be found elsewhere.

In the selection of Dr. Fishbein as Editor of the Journal of the A. M. A. there has been secured the most brilliant, capable and efficient medical editor in the world. Dr. Fishbein has been the Associate Editor for fourteen years. By education, training, experience and inherent ability he abundantly meets every requirement for editorship. We know of no one who will be able to maintain the high standard of our National publication as will Dr. Fishbein.

For thirty-one years, Mr. Will C. Braun has been Advertising Manager of the Journal of the A. M. A. By his ability and business sagacity, he has brought about the financial success of that publication. He has annually been in charge of the exhibits and business arrangements of the Annual Meeting. He has supervised the actual business affairs surrounding headquarters. Efficient, foreseeing, sound in business judgment success has attended his activities and services.

On behalf of our state we tender to these new executives our congratulations. We likewise pledge loyalty and support. We further voice our pleasure in their election. Under their guidance we feel assured that our great national organization will continue in its onward progress of achievements.

THE DISTRICT POST-GRADUATE MEDICAL CONFERENCE

According to the plans of the Michigan State Medical Society the first District Post-Graduate Medical Conference was held at Traverse City on November 18, 1924. This day was one of history in that it initiated the carrying out of a new program by the State Medical Society in co-operation with the Councilor Districts and their respective County Medical Societies. The aim of these Conferences is to bring to the doctors who are intensely busy in their field of practice the best and most modern developments in scientific medicine and to give to the public the facts and truths in this scientific field. For the future or the year ahead the Executive Committee has plans for conducting at least twenty District Post Graduate Medical Conferences in both the Northern and Southern Peninsulas of the State.

The program that was entered into with interest at Traverse City and attended by an average of forty-five doctors from sixteen different cities of North Wetsern Michigan, is the following:

MORNING PROGRAM

10:30—Openins Statements—Councilors Ninth and Thirteenth District, Executive Secretary.

10:40—Examination of Patients (Illustrated), B. R. Corbus, Grand Rapids, Chief of Medical Service, Butterworth Hospital, Grand Rapids.

11:00—"Diagnosis of Chest Diseases," J. S. Pritchard, M.D., Battle Creek, Chief of Department Diseases of the Chest, Battle Creek Sanitarium.

11:30—"Renal Sugery," Hugh Cabot, M. D., Dean and Professor of Surgery, Medical Department, University of Michigan.

12:15—Luncheon, Park Place Hotel. Three ten-minute Organization Discussions.

AFTERNOON

1:30—"Therapeutics of Heart Diseases," M. A. Mortenson, M. D., Battle Creek, Chief of Department of Circulatory Diseases, Battle Creek Sanitarium.

2:10—"Treatment of Acute and Chronic Bronchitis—Pneumonia," J. S. Pritchard, M. D.

2:45—"Gallbladder and Ulcer Surgery," Hugh Cabot, M. D.

3:40—Blood Pressure Findings," M. A. Mortenson, M. D.

4:15—"Modern Methods in the Management of Obstetric Cases," H. S. Colisi, M. D., Chief of Obstetrical Department, Butterworth Hospital, Grand Rapids.

5:00—"The Examination of the Infant and Child,"H. G. Clay, M. D., Grand Rapids, Attending Pediatrist, Butterworth Hospital, Grand Rapids.

6:00—Dinner, Park Place Hotel. "The Doctor's Relation to the Public," Hugh Cabot, M. D.

EVENING PUBLIC MEETING

8:00—"The Preservation of Your Personal Health," Hugh Cabot, M. D.

The success of these Post Graduate Medical Conferences depends upon three things; friendship, co-operation and work. Friendship must exist among the doctors of every medical society and likewise among the doctors of all other medical societies. There must be a close co-oepration for achievement first among the doctors of each County Society, secondly of each Councilor District and thirdly of the State Medical Society. There must be also, a close co-operation in an organized way of the County Societies, with the respective Councilor Districts and each in turn with the State Society. The reverse of this is also true in that the State Society must co-operate with each and every section of its organization. And this is not enough. This is selfish in outlook. The great public is still untouched. There must be friendship and co-operation with the people through recognized civic bodies of standing in every community, every county and in the State. The Joint Committee of Public Health Education is ever ready to help. But friendship and co-operation are not enough. To accomplish the aims and objects of this program of the State Medical Society requires not only friendship and co-operation alone, but in addition, work. Every doctor should serve his fellow man by working in an orgonized way through his

medical societies for the advancement of scientific medicine and a broad understanding of its value on the part of the public. Work for the success of the Medical Conferences is one definite way of attaining this achiement.

The following comments evidence the value that has been credited to the conference. In this undertaking our organization records the commencement of a new era of activity:

The Editor of the Journal of the Michigan State Medical Society:

In reply to your letter of November 19th, would say that the conference at Traverse City on the 18th was a decided success, accepting the expression of many physicians who were in attendance. And I feel confident that I received the expression of the representatives from various counties.

I must say that I was more than pleased with the high tsanding of the physicians who were present. I do not feel at all boastful when I say that the 9th and 13th Districts have some very fine physicians, highly educated and a very congenial bunch of men. And their interest in this conference was very greatly appreciated.

The meeting was called to order at 10:40, being only about 10 minutes late as per schedule. Everything went off very smoothly, physicians all remaining to hear the very interesting presentations which were given. I feel that your Committee is to be congratulated upon selecting the physicians who so very kindly contributed to the program, and owing to the intense interest which was manifested which is only measured by the fact that every man remained in his seat during all the sessions, and listened with all the interest which was creditable to the speakers.

The place of meeting at the Park House Hotel was ideal. As I looked over the audience at various times during the day it impressed me that these conferences are of far greater importance than the Sectional Meetings, which are held in connection with the Michigan State Medical Society. While I do not wish to lead you to believe that I am not in accord with the Sectional Meetings, which we know are the real meat of the medical meeting. Nevertheless these conferences are going to bring the workings of the Michigan State Medical Society before physicians who have not been fortunate enough to attend State Meetings. I cannot speak to highly of these conferences and feel that they are going to be the making of a better physician, better County Societies and better State Societies.

I wish you would express my appreciation to Mr. Smith, the Executive Secretary, and advise him if I can be of any help to him, at any time, I would appreciate his calling upon me.

Let us all push forward for a banner year in 1925 of the Michigan State Medical Society. I remain Yours Respectfully,

Otto L. Ricker, M. D.
Councilor.

The Editor of the Journal of the Michigan State Medical Society:

Regarding local feeling concerning the conference meeting held in Traverse City, November 18th, will say that it made a very favorable impression on the physicians of the district and, I believe, has helped us some with the laity.

The program was excellent and the men who attended were well repaid for the time and effort spent in coming, although some of them drove a hundred miles or more to get here.

The general concensus of opinion is that it was the best meeting ever held at this point.

Your speakers were all good and I think the use of lantern slides with the lectures were a great help and enabled us to get a great deal more out of the meeting.

We believe that the program was somewhat heavy for the few hours we had, but even at that, almost everyone stayed until the last bell sounded and then attended the public meeting.

The public meeting was attended by something over five hundred of the best citizens we have here who were pleased with Dr. Cabot's talk.

We are hoping for another meeting some time next spring. Mr. Smith, the new Executive Secretary, was well liked.

Pardon this short letter as I wanted to get it in to the mail tonight as per your request.

Sincerely,
F. F. Swartz.

The Editor of the Journal of the Michigan State Medical Society:

The meeting at Traverse City was a success in every way. Forty-five physicians attended and were at every lecture. I never before saw a group of medical men who seemed so interested in a program.

Dr. Corbus of Grand Rapids, Dr. O. L. Ricker of Cadillac, and our new State Executive Secretary deserve great credit for the management of the meeting.

The lectures started on time and went along with a bang, not a dull minute in the whole program. The men on the program were exceptional. Their lectures were interesting as well as instructive.

Several men present expressed themselves as more than satisfied with the conference, and men from my district want another such meeting at Petoskey in the spring.

Meetings tlike this one keep the Societies alive and each man that attended this meeting, I am sure, went home full of pep and satisfied that the State Society is trying to do something for him.

Yours truly,
B. H. Van Leuven, M. D.,
Councilor 13th District.

Editorial Comments

The Rotary Clubs of the World, through its international organization committees, is promoting the adoption of codes of ethics for various trade, manufacturers and business organizations and groups. It has recognized the necessity of such codes to govern trade practices and competition. Rotary is preaching with effectiveness, standards of correct practice. It announces that the trying situations of our very complex business life, with its constantly changing and increasing number of new business relations and problems, point to the need of written rules of conduct for the guidance of the many and the good of all. Rotary proposes also to encourage and foster an observance of these code rules and to induce the individual to apply them into correct business action. To all of which we say Amen. Likewise, we remind our members of our own Principles of Medical Ethics. We have the code, many are familiar with its principles, but how many interpret them into correct professional practices? Let us join Rotary in that part of its movement to bring about observance of high ethical standards by exemplifying our Principles of Medical Ethics in our daily work and associations. Show up at the same time the grafter and commercialist.

Of the making of many Christmas cards there is no end. With many the custom of sending out these cards is purely a custom. With a considerable number it is an advertising stunt and habit. With some recipients the thought is not of the wish or greeting conveyed, but more of how many cards received. This has been made too common a custom and tainted far too much with commercialism in buying the cards and sending them. The real inspiring spirit is absent. A penny, "two for a nickle" postcard, or a twenty-five cent engraved card with a one or two-cent stamp attached is not sufficient to convey a sincere Christmas spirit greeting or New Year wish. You have friends in numbers and some in hosts. Each possesses personal, individual characteristics. Each is your friend for a varying reason. Some are more intimate and dearer to you. You cannot send a sincere greeting or a hearty wish and make it mean anything at all by mailing to the whole number a stereotyped Christmas and New Year card. The suggestion is advanced that you set about to find a personal way to extend your Christmas messages to your friends and do away with commercialized Christmas and New Year's cards.

There is no question that too many appendices are being removed, too many round ligaments shortened, too many tonsilectomies performed, too many septums straightened and too many gallbladders removed because the diagnosis has been based upon the securance of a fee and not upon clinical and pathological findings. This practice is prevalent. It is being recognized by the patient and the public. It is exercising a harmful influence. One competent surgeon recently advised us that not a day passes in which he does not inform one or two patients not to have an operation, when they had been advised by others that an operation was imperative. What is needed are more surgeons who will rise up in a like manner and aid in wiping out these unnecessary operations and financial robberies. There is no man more deserving of contempt and denouncement than the "financial operator" who poses as a surgeon. It is time to clean house and kick off our hospital staffs this type of a man. If we don't do it, ere long hospital trustees will. Which bouncer do you prefer?

When prominent individuals become seriously ill the public in general is intensely interested. The people want to know the nature of the illness and the daily condition. To that end the attending medical men issue a bulletin. The meagerness of these bulletins and the often uninterpretable nature of their contents is the subject of this discussion. Every physician has had the experience of being approached by local people who question him as to the meaning of these bulletins. These are interested parties who are interested and who approach their local doctors for detailed information. The local physician, because of the meagerness of the bulletin, is unable to add additional interpretation and is often placed in an embarrassing position. That was the experience in the recent illness of both President Wilson and President Harding, Mrs. Harding, Senator Cabot Lodge, Secretary of Agriculture, and right close at home, in the illness of President Burton. The suggestion, not criticism, is made that attending physicians of prominent persons, when that individual is acutely ill and bulletins are issued, should set forth in a concise manner the clinical findings so that they may be intelligently interpreted to interested individuals by any doctor.

Just now there seems to be a wave of activity to provide medical and hospital care for the crippled child. These unfortunate children have become the concern of Rotary, Shriners, Knights Templar, Elks, Kiwanis, American Legion, Department of Health, and special clinics. State and nation-wide movements are being conducted. Hospitals are being built. Special membership assessments to provide funds are being levied. Is this a spasm? Are efforts being duplicated? Is systematized effort being exhibited? Is the sympathy string being overplayed? These are questions calling for serious reflection by those who act as leaders in these varied sponsorships.

Our thanks are extended to those members who cut out the ad, "Doctor, Give Us a Minute, Please!" and sent it in. We are disappointed because we didn't receive at least 1,000 replies. So we are repeating our request this month. Come on, you Councilors, Section Officers, Officers of County Societies, Committeemen and Members! Turn to our ad section. Clip the ad. Fill in the blank space. Send it in! Mobilize during this month of December and aid us in this business proposition.

Well, now that election is past, the income state tax amendment defeated and cold weather at hand we have nothing to worry about for there are still 24 shopping days before Christmas, the legislature doesn't convene until January and winter taxes are not due until January 31st. December bids being a carefree month with spare time available to do some work for your local Medical Society and become interested in its activities. Our Executive Secretary is going to take up these problems in each county. We bespeak your interest and support. Write and tell him how you can and will be of assistance.

County Secretaries are reminded that in collecting 1925 dues the new amount of state dues is ten dollars. Remittances should be made on the monthly report blanks. If your supply is exhausted, drop us a line and we will send you a new supply. Make checks payable to The Michigan State Medical Society, and not to the treasurer. Report and remittance to be mailed to the Secretary.

There is a splendid article in this issue by J. Rilus Eastman of Indianapolis. It's one we may all well ponder upon for it furnishes much for meditation and application. Dr. Eastman has presented the subject in a scholarly form. If you are in disagreement with him, or if you are disposed to enlarge upon his views, we welcome your discussion for publication in our correspondence column. May we have them?

Our Executive Secretary makes his opening bow in a new department that will be a feature of each issue of The Journal. We bespeak a cordial reception on the part of our members for Mr. Smith. He is starting out upon important activities that are conducted for your benefit and your personal gain. The degree in which you respond will determine the size of the profit that accrues to you.

This issue does not contain all that we purpose in including for the increase in value of The Journal. A new volume commences with the January number. At that time we hope to complete our plans for a better and bigger Journal.

You will pay $10.00 for a spotlight for your flivver and think nothing of it. While your spotlight is of use, your Society membership is of hundred fold more value and service to you and costs you only $10.00. Of the two, which can you afford to miss? So send in your 1925 dues to your County Secretary and watch the benefits you will obtain.

Kentucky is proposing the increasing of its State Medical Society dues to $10 per year. In commenting thereon it is stated that the annual dues of the Kentucky Osteopathic Association is $75 and the Chiros is $60. We wonder if these are spending the bulk of their income for personal education and betterment as do Medical Societies or is the greater amount expended in lobbying with legislators.

Has not the pendulum swung to its furthermost limit in the present attitude regarding tonsilectomy? Here and there will be noted the issuance of a warning against wholesale methods in advising removal of tonsils. Internists are expressing opinions that the tonsil is not at fault as frequently as has been stated. Diseased tonsils are not the primal factor of pathological conditions in the degree that has been credited to them. Their removal is not the panacea in every instance. In our entire hitsory no other part of human anatomy has had directed to it so concentrated condemnation as has the tonsil. It has been estimated that fifty per cent of the present day tonsilectomies are unnecessary. This fifty per cent has been classified as the "gasolene supply" of some doctors. Well, will someone rise up and give us the real facts? What is going to be done to stop these unnecessary tonsilectomies?

Correspondence

The Editor of the Journal of the Michigan State Medical Society.

1 The Adjutant General of the Army is making every effort to get all men eligible for the bonus to make their applications, or to decline same, at the very earliest moment. The inclosed statements by the Adjutant General will give you some idea of the work and of the efforts being made to finish this necessary work as soon as possible.

2. It is thought that the members of your profession are probably in a better position than most any other agency to assist the Adjutant General. Would you please circularize your members and ask them to assist in having all delinquents make their applications? There must be many of these delinquents coming to hospitals or needing medical attention. They probably have failed to apply either through procrastination, or for the reason that they do not know where to go for assistance in preparing the application blanks, or who do not want the bonus.

3. There are many Regular Officers and enlisted men of the Army, Navy and Marine Corps on duty in many cities and towns in your State. These officers and men may be found at Army Posts, recruiting stations, the Red Cross, all American Legion posts, the Veterans' Bureau and Post Offices are ready and willing to assist.

4. Your assistance in this matter will be greatly appreciated.

For the Commanding General:

Charles C. Smith,
Colonel, A. G. D.,
Adjutant General.

State News Notes

COLLECTIONS

Physicians' Bills and Hospital Accounts collected anywhere in Michigan. H. C. VanAken, Lawyer, 309 Post Building, Battle Creek, Michigan. Reference any Bank in Battle Creek.

NURSES' private home, invites convalescents and invalids; best of care, fine location. R. Rs. N. Y. C. and Interurban; best of references given. For particulars write Bessie Bileth, 566 Ely Street, Allegan, Mich.

LARGE Eye, Ear, Nose and Throat Clinic wants a man who wishes to take up refractions. Opportunity to learn Ear, Nose and Throat work in addition, if qualified.. Address Michigan State Medical Journal, Powers Theater Bldg., Grand Rapids Mich.

WANTED—To adopt a girl of age one to four years, by practicing physician. Customary information as to birth and health required. Any physician knowing of a desirable child, please communicate with—Adoption, c/o Journal.

WANTED—Position with gynecologist and obstetrician, surgeon, group or busy general practitioner. Detroit preferred. Class A-1 graduate, age 32, married, Mason, Gentile. Has had general interneship, special training in obstetrics and gynecology and has done general practice. Willing to work hard, but must have living wage with opportunity for future. Best of references. Address M1024—c/o Journal.

FOR SALE or rent, the office and private hospital of the late Dr. F. J. Knight of Charlotte, Michigan. Hospital is so arranged, could be used as residence if hospital not desired. Splendid opportunity for a good doctor or surgeon to obtain a very lucrative practice. Address Mrs. F. J. Knight, Charlotte, Michigan.

UNUSUAL OPPORTUNITY afforded by sudden death of well known orthopedic man. Long lease on beautiful offices, well equipped for most up-to-date orthopedic work. Complete physiotherapy outfit. Chance to step into exceptionally well established practice. Inquire Miss Williams, Room 322 Professional Building, 10 Peterboro Street, Detroit, Mich.

WANTED: Salaried Appointments for Class A Physicians in all branches of the Medical Profession. Let us put you in touch with the best man for your opening. Our nation-wide connections enable us to give superior service. Aznoe's National Physicians' Exchange, 30 North Michigan, Chicago. Established 1896. Member The Chicago Association of Commerce.

A PRACTICAL course in Standardized Physiotherapy, under auspices of Biophysical Research Dept. of Victor X-Ray Corporation, is now available to physicians. Offers a highly practical knowledge of all the fundamental principles that go to make up the standards of modern scientific physiotherapeutic work. Course requires one week's time. For further information apply to J. F. Wainwright, Registrar, 236 So. Robey St., Chicago, Ill.

A paper on "Eye Changes in Diabetes" was presented by Doctor Walter R. Parker, Professor of Ophthalmology of the University Medical School before the Post-graduate Section of the American Academy of Ophthalmology and Otolaryngology at Montreal on September 20th.

Dr. George Slocum of the Department of Ophthalmology, University of Michigan Medical School, read a paper on "Irremovable Foreign Bodies from the Eye" before the State Medical Society on September 16th at its meeting in Mt. Clemens.

The Pathological Laboratory of the University of Michigan Medical School was visited during the month by Dr. A. Wadsworth of Albany, New York, head of the Health Department Laboratories of the State of New York, and by Dr. S. R. Haythorn, Professor of Pathology at the University of Pittsburgh.

Research work on the poisonous action of aluminum and lead is being conducted by the Pathology Department of the University Medical School.

Volumes 11 and 12 of the Contributions from the Pathological Laboratory of the University Medical School have just been issued and distributed. Volume 11 contains thirteen titles and Volume 12 seventeen titles of papers published during the last two years by members of the Pathological Staff.

Doctor A. S. Warthin of the Department of Pathology, University Medical School, represented the University of Michigan at the dedication of the new Pathological Institute of McGill University in Montreal. During the last week of November Doctor Warthin gave seven post-graduate lectures to a post-graduate group composed of seventy-four physicians in Spokane, Washington.

A paper was read before the Michigan State Medical Society at Mt. Clemens by Doctor E. P. Russell of the Department of Pediatrics and Contagious Diseases of the University Hospital on Infantile Tetany with Report of a case. Doctor J. P. Parsons gave a paper on "The Physiology of the Quartz Light" before the same Society.

Doctor Walter R. Parker of the Department of Ophthalmology of the University Medical School read a paper on "The Mechanism of Papilledema" before the American Academy of Ophthalmology and Otolaryngology in Montreal on the 18th of September.

Doctor Walter R. Parker of the Department of Ophthalmology, University Medical School, was elected President of the American Board of Ophthalmic Examinations.

Doctor William Stokes of the Ophthalmology Department, University Medical School, was married to Miss Margaret Scott at Lake City, Michigan, September 27th.

Items of personal news and interest are solicited. We welcome your interest in this department of the Journal.

Dr. Chas. B. Long, of Pontiac and Dr. G. W. Nihart of Petoskey, spent a month of hunting and fishing in the Upper Peninsula. (No, the editor did not receive any venison or fish).

Dr. B. H. VanLewan of Petoskey is spending a month in Upper Peninsula hunting.

Dr. J. W. Inches of Detroit is on a hunting expedition in South Africa.

Dr. J. F. Cardwell of Grand Rapids is spending the winter in Florida.

Are you reading our Journal advertising pages? Are you patronizing these advertisers? The Journal depends upon you to assist in maintaining this revenue.

Dr. James H. Boulter of Detroit has moved to Beverly Hills, California.

Dr. Frank S. Bachelder, Assistant Medical Superintendent, Pontiac State Hospital, has resigned after 18 years of service, and will enter general practice in Pontiac, Dec. 1, 1924, with office in the Marsh Block, 74½ N. Saginaw St., and residence at 57 Mary Day Avenue.

Doctor and Mrs. Thos. R. Whitmarsh, of Sault Ste. Marie, Mich., sailed last month for Europe where they will spend the winter in Vienna.

Vernell H. Reeder, son of Dr. and Mrs. James A. Reeder, of Clare, was married November 17th to Miss Marjorie Jackson, also of Clare.

Dr. John J. Corbett has opened offices at 1202-6 David Whitney Building, Detroit.

Dr. Fred H. Cole spent some time at Rochester at the Mayo Clinic. during the early part of last month.

Drs. C. D. Brooks, Wm. R. Clinton and L. B. Ashley have removed their offices from the David Whitney Building, to 113 Martin Plalce, Detroit.

At the November meeting of the Academy of Surgery of Detroit, held at Harper Hospital, Friday, November 14, Drs. Max Ballin, Wm. J. Cassidy and Thomas Cooley addressed the membership and exhibited some interesting cases. Among the out of town members present were Dr. C. D. Darling from Ann Arbor and H. E. Randall from Flint.

The Council of the Michigan State Medical Society will hold a special session in Detroit, December 11, 1924, at 9 a. m.

Dr. Robert Beattie is convalescing from a recent operation for appendicitis at Province Hospital, Detroit.

Dr. Angus McLean presented to the internes of Harper Hospital a set of Ochsner Surgical Diagnosis and Treatment and received from the internes the following signed letter:

Dear Doctor McLean:—

The undersigned internes of Harper Hospital wish to express to you their appreciation of your thoughtfulness in presenting to them a set of Ochsner Surgical Diagnosis and Treatment.

We assure you that they are in constant use and of great help in our medical education.

Very Sincerely Yours,

H. H. Heffron, M. D.	Harold B. Fenech, M. D.
Harry A. Pearse, M. D.	Robert A. Weber, M. D.
Arthur S. Hale, M. D.	Martin Feldstein, M. D.
James F. Busby, M. D.	J. Frank Hackett, M. D.
L. A. Chrouch, M. D.	R. W. Waggoner, M. D.
Harold U. Mair, M. D.	O. C. Armstrong, M. D.
E. V. Johnston, M. D.	D. P. Hornbogen, M. D.
E. H. Lauppe, M. D.	V. R. Marburger, M. D.
Arch Walls, M. D.	Benj. L. Sargent, M. D.
W. F. Schreiber, M. D.	Russel H. Strange, M. D.
C G. Clippert, M. D.	Donald A. Bailey, M. D.
Neil J. Whalen, M. D.	W. Warren, Jr., M. D.
F. J. Fitzjatrick, M. D.	R. H. Morrisey, M. D.
H. W. Harrison, M. D.	Chas. S. Appelbe, M. D.
Frank D. Linn, M. D.	L. F. Carter, M. D.
Chas C. Merkel, M. D.	John Tulloch, M. D.
H. C. Metzger, M. D.	E. A. Stewart, M. D.
Clarence D. Moll, M. D.	Henry S. Powers, M. D.
Earl B. Ritchie, M D.	T. Leuculea, M. D.

OUR SOCIETY BUSINESS AND ACTIVITIES

HARVEY GEORGE SMITH
EXECUTIVE SECRETARY

NOTE: This Department will each month contain a discussion and report of our Society work and planed activities. Your interest and correspondence as to your problems is solicited.

SALUTATION

In tendering this salutation to the doctors of the Michigan State Medical Society, may I say that I come into your fellowship and into your Society in a humble spirit. Your Executive Committee, in its last session unanimously elected me to fill the office of Executive Secretary. This is an important office and means at the same time an advanced step for the Michigan State Medical Society in the direction of scientific medicine, organization in the profession of and the development of more thorough understanding on the part of the lay public as to what scientific medicine is and what should be the understanding by the layman of that science which has in its united knowledge the actual responsibility of the health of the people of Michigan, the United States and the nations of the world.

The position of Executive Secretary of the Michigan State Medical Society carries with it many and heavy responsibilities. The duties that pertain to this office are numberless. Every County Secretary will no doubt and should be looking for some assistance from this office. It should be given. Every member of a County Medical Society and of the parent state organization has the right to look forward to receiving some help either directly or indirectly and this should be given. Personally, I want to say, as your Executive Secretary, that I am yours, not to bring increased dues to your membership but to bring service to each and every doctor, by working toward the end—the fulfillment of the ideals of the profession of medicine, through more careful and systematic organization.

At this time it is impossible to definitely state what I am to do. As the days pass and only as I come to learn of the problems of the profession through careful study and through a close fellowship and friendship with many doctors in the science of medicine can I be of more service. Let me state right here, however, that there is no *ego* to be seen in the activities of this office. The work that we do is not to be "I have done this or that thing" for the Michigan State Medical Society, but it is to be *"we."* As I go about my duties learning here from one doctor and there from another, here from one Society and there from another, and on and on, let us work together in closest co-operation and in perfect frankness in the interest of better organized medicine for the State of Michigan.

The officers of your State Society have already accomplished many things. Your Executive Committee is intensely interested and your Secretary-Editor has been and is most ambitious for your Society. He it is who has for ten years advocated an Executive Secretary for the Michigan State Medical Society. That aim has been attained. Let us show results: Doctors, County Societies, as a single unit not each for itself, but all together. Not the *ego,* but the *WE.*

I thank you personally for permitting me to enter into your fellowship and into your work.

Harvey George Smith.

THE WORK OF THE COUNTY MEDICAL SOCIETY

Just what is the work of the County Medical Society, is a question that all members have asked, but more especially the Society Secretary. What can be done that has not already been done? Are we to continue just as we have been doing? Where can we go to learn what this work is that we know is so important. Is there not one single place where the wise man sits who can tell us what is our work? It is an organization principal that when a society of any type whatsoever comes to the place where the members have no tasks for the day following, that such societies crumble. There are unnumbered monuments throughout the state today for this simple reason alone. Then is not the conclusion as to what is the work, found in the answer, look within and not out? Suppose, for example, that a County Society has a series of programs arranged to cover a year or more. The speakers are all men famous in the profession of medicine and bring to that society the very best that they can give and that can be secured on the various subjects. Will the society have found its work and will it have accomplished its task? Will it be a virile, growing society, fulfilling the aim of the

medical profession of that county? The quetsion can be best answered by saying that every society must without a question retain its own responsibility. The Society that assumes no responsibility or has not assumed its responsibility in the past is on the downgrade.

The editor of the New York State Journal of Medicine after an extensive study of his state summarizes his report by saying that the County Medical Societies have three great functions:

1. The education of individual doctors in scientific medicine.

2. The promotion of community movements in medicine.

3. Social activities among the physicians themselves.

To fulfill these three functions will require responsibility, work, thought, ambition, enthusiasm, faith, justice. We can accomplish these things by a closer working relationship between the County Societies and the State Society and among the Societies themselves. Let the State Society help, be a clearing house for methods, and ideas and let the results come from the field of action. Every County Society must have a vision, see it resume responsibility and then attain.

THE COUNTY SOCIETY REPORT

The County Medical Society Report is the record of the activities that each society conducts from week to week, from month to month and from year to year. All these reports in reality make up the record of the Michigan State Medical Society as each County Society by its own by-laws, is a member of its parent organization. If we take a step further, these records added to the records of all other such societies in the United States make up the accomplishments of the medical profession in the field of practice. With this point of view for the report are we not here in Michigan ready to take upon ourselves the responsibility for our various societies and for our State organization? We need and want this complete record beginning now. This means every County Society.

What does the report furnish? First: It gives the members of the local society a knowledge that their own society is at work, that it is keeping up the standing of the medical profession in their county and more than that, it is adding to, by progressive steps, that which each physician wants his society to take, and of which he wants to be a part. Secondly, Each Society as a unit has a duty to tell to every other County Society in the State of Michigan what it is doing, accomplishing and contributing to the practice of medicine. Each Society is doing its work in a different way and this is constructive building for the future, it is the activity that has new ideas. Every Society gets new ideas by knowing what its neighbors are doing, the methods used in bettering the Societie's welfare and its standing in the community of the county—the community of the scientific man and the community of the layman.

It is not sufficient to report only of the progress and leave out those things that are commonly tabooed as failures. Failures, even though they can never be defined as accomplishments, often are the actual and long looked for steps to progress. It is not necessary for all of us individually to pass through the same failures to make progress. When one Society discovers how, when and where it has failed, this information in itself when given to other organizations interested in the same aims, naturally steps up, through a knowledge of learning and not experience. That which has required one society years of strenuous activity to acquire, may be attained by another in a few minutes. The report of failure, then, is the basis for progress for every unit of the Michigan State Medical Society, just as is the record of those activities that are known as progress.

Again, what does the report mean? It means accurate history of the fifty-six County Medical Societies of the State of Michigan, and thus a complete history of the Michigan State Medical Society. We do not know that other States have achieved to this high accomplishment, we do not need to wait for them to do so. Let us begin now and record our history in the making and without a lapse.

Medical Societies are earnestly requested to take a few minutes after each meeting of their societies to write the record of activities, noting special points of interest to the medical profession of their county and any action taken by the Societies relative to the steps taken in developing interest in a proper understanding of the science of medicine on the part of the public. The promotion of community movements on the part of the medical profession is the next great step in the evolution of medical science. The State Society wishes every Secretary to keep in the files of the County Society a copy of such written historic information and send regularly the duplicate of such information to the office of the parent Society. Cooperation and not disintegration is a way to the scientific advancement of Scientific medicine.

Among Our Letters

NOTE.—*This department is the open forum of our members. Your communications and discussions are welcomed. Anonymous communications cannot be accepted, though at times names may be omitted by the Editor. Personalities will not be printed and responsibility for opinions is not assumed. We invite your interest in this department. Address: The Editor, Journal, Michigan State Medical Society, Powers Theatre Bldg., Grand Rapids, Mich.*

NEED OF PUBLIC HEALTH EDUCATION

Frequently we receive queer and curious letters. Here is one of recent date. We'll say our Joint Committee on Public Health Education has a job, for there are thousands in ignorance. Read for yourself.

Ionia, Nov. 3, 1924.

State Medical Society, Powers Theatre Building, Grand Rapids.

Dear Sir i saw your name mentioned in the Grand Rapids paper in regard to get healthier people now i have something that has proven out to have merit for diferant diseases & it has worked when the Dr. have quit & it brought them out & saved their lives & i think the Dr. should use this for it has value in it to save life & it is A simple thing & never seems to hurt no one if it dont help them now i except to be in the Rapids on the 10 of this month & if you will write me & tell me where i can meat you on that day or on the 11 i will come & see you.

Resp.

E. O. B.——,
R. 5, Ionia, Mich.

Traverse City, Nov. 6, 1924.

Editor The Journal:

Where may I obtain reference to medical literature on iodine treatment of goitre? Thanking you,

——— ———, M. D.

Reply: Write to Cumulative Medical Index Dept. American Medical Association, 535 N. Dearborn St., Chicago.

Holland, Mich., Nov. 1, 1924.

Editor The Journal:

What is the date of the next Annual Meeting of the A. M. A., and where is the meeting place?

R. H. Nichols.

Reply: Week of May 25, 1925—Atlantic City, N. J.

A KIVER TO KIVER READER

The following is from a loyal member who clipped the ad, "Doctor, Give Us a Minute, Please."

Secretary-Editor: This is good stuff and here goes to show you one who reads The Journal from "Kiver to Kiver." Even enjoy the 100 per cent political travesty. More power to your pen.

Goering.

Cambridge, England, Oct. 23, 1924.

Editor The Journal:

We have recently acquired a copy of the Beaumont Foundation Lectures No. 2, under the English Copyright Act. This series will doubtless be of the greatest interest to Medical Students of this University, and I venture to ask if your Society will be good enough to present No. 1 to this Library, in order that we may preserve a complete set of the series here.

W. F. Cuthbertson, Secretary.

We tender congratulations to the Lectureship Foundation Committee of the Wayne County Medical Society upon this recognition. A standard has been created for these Beaumont lectures that commends the activity that the Committee has evidenced. We are afraid we in Michigan haven't quite appreciated that fact.

Big Rapids, Mich., Nov. 13, 1924.

Editor The Journal:

Can you give me any information regarding the Professional Underwriters of Grand Rapids, Michigan? They have had an agent in this locality recently and I would appreciate any information you can give me regarding their responsibility in issuing medical protective insurance. Thanking you for this favor, I am

Yours very truly,

G. H. Yeo.

Reply: Not endorsed or approved by The Council or our Medico-Legal Committee.

Come on, boys! Help put some more live stuff in these columns.

Deaths

Perry Schurtz, M. D., Grand Rapids, died on Nov. 17, 1924, from angina pectoris. Dr. Schurtz has been a resident practitioner of Grand Rapids since his graduation from the University of Michigan in 1876. He was a member of the Kent County Medical Society and the Michigan State Medical Society. For many years he was a member of the Grand Rapids Board of Health. As a surgeon he had early obtained a wide-spread reputation. For the past 10 years he had greatly limited his professional activities on account of failing health.

Dr. Carrol Lawrence Storey, Detroit, while duck hunting off Point Huron in Lake St. Clair, was drowned November 3rd, when his boat capsized in a stiff breeze. The doctor was hunting alone and about two hours after setting out his accident occurred.

Dr. Storey was born near Toledo 47 years ago, being the son of a physician. He received his pre-medical education at Oberlin College, graduating a Bachelor of Science at the age of 21. He then undertook the study of medicine, graduating from Rush Medical College, Chicago, in 1903. Following his graduation, he practiced a number of years at Whitehall, Wisconsin. Just before the World War he left for Harvard University to take up the study of orthopedics.

When the British call for American physicians came, Dr. Storey responded and served under Dr. Robert Jones of Liverpool for six months. He served overseas as a Captain in the Medical Corps of the United States Army and after returning was detailed for a time at the Walter Reed Hospital, Washington. Since coming to Detroit he has been associated with Dr. W. E. Blodgett at Grace Hospital and was the head of Sigma Gamma Civic Orthopedic Clinic. He also had charge of the orthopedic work at Northville Tuberculosis Sanitarium and the Nellie Leland School for Crippled Children. He is survived by his widow.

Dr. Moses Fechheimer, Detroit, was born in Detroit, July 30, 1875, and aside from the time spent in study of his specialty, was a life-long resident of the city. He died suddenly of Angina Pec-

toris early in the morning of November 4, 1924, at the Phoenix Club, Detroit.

His early education was obtained in his native city and he graduated from the Detroit College of Medicine and Surgery in 1899. After serving his interneship at St. Mary's Hospital, he was city physician from 1903 to 1905. He then decided to take up the specialty of urology and to perfect himself, spent a considerable time in study in Vienna and Berlin. For nearly twenty years he has followed his specialty in Detroit. He was genito-urinary surgeon to the United Jewish Charities. Besides his membership in the Wayne County Medical Society, the Michigan State Medical Society, and the American Medical Association, Dr. Fechheimer was a member of the American Urological Association and the Chicago Urological Society.

Dr. Fechheimer never married.

County Society News

IONIA-MONTCALM COUNTIES

The Ionia-Montcalm County Medical Society met Thursday evening, Oct. 9th, at Belding, Mich., with 26 members present.

Dinner was served at Hotel Belding, after which the following program was presented:

Subject: "Recent Developments in Nephritis." Speaker, Dr. Phil Marsh, Assistant Professor of Medicine at the University of Michigan, Ann Arbor. Dr. Marsh gave an exceedingly practical talk, brimfull of new ideas regarding the etiology and treatment of nephritis as carried out at the University hospital. The members present expressed themselves as being very grateful to Dr. Marsh for the scientific data presented to them.

Subject: "Infection of Kidney."

Speaker, Dr. Carl Eberbach, Assistant Professor of Surgery, University of Michigan, Ann Arbor. Dr. Eberbach presented the subject in a masterly manner.

1st. Differentiating between the medical and surgical kidney.

2nd. Definite bacteriological causes and their mode of transmission.

3rd. The selective action of certain organisms for a definite part of the kidney structure.

4th. Treatment of various types of infection of the kidney.

This talk was splendid, complete and concise. The lantern slides illustrating the talk made the presentation very clear and instruction.

F. A. JOHNSON, Secretary.

The November meeting of the Ionia-Montcalm Medical Society was held at Greenville, Thursday evening, Nov. 13th, 1924.

Dr. A. J. Bower, the retiring President, gave a complimentory dinner at his home at 7:30 o'clock to sixteen members and three guests, Drfl Richard Smith, Dr. Fred P. Currier, Grand Rapids, and Dr. L. E. Kelsey, Lakeview.

After the dinner, the guests were entertained by Dr. Richard Smith of Grand Rapids, who gave an illustrated talk on his recent trip to Havana, Australia, and New Zealand. This talk was intensely interesting and instructive and was listened to with profound attention.

Dr. Jos. Pinkham, Belding, Mich., gave his report as delegate to the Michigan State Society Meeting.

It was moved by Dr. J. R. Hansen and seconded to unanimously endorse the action of the House of Delegates in raising the annual dues from five dollars per year to ten. Motion carried.

Dr. Robert Haskell moved that the members present extend to Dr. and Mrs. A. J. Bower a vote of appreciation for the excellent dinner and the evening enjoyment. Seconded and unanimously carried. F. A. JOHNSON, M. D., Secretary.

GOGEBIC COUNTY

I a mpleased to submit the following report of our November meeting:

"The regular monthly meeting of the Gogebic Medical Society was held at Grand View Hospital, Ironwood, on Friday night, November 14. Dr. H. F. Ringo presented an interesting paper on "Pediatrics." The Society voted in favor of increasing the annual dues as recommended by the State Society. There were numerous X-ray pictures and laboratory specimens on display. Dr. M. H. Draper, and Dr. Oscar Harmos, both of Grand View Hospital, were voted into the Society at this meeting. Following the scientific program, lunch was served, after which the meeting adjourned."

The largest number of members of the year were present at the regular monthly meeting of the Gogebic County Medical Society, which was held at the St. James hotel, Ironwood, Friday evening, October 17. After enjoying an excellent dinner, various medical and scientific subjects were discussed. Following this the annual election of officers took place, with the following results:

President, Dr. T. S. Crosby, Wakefield.

Vice President, Dr. R. E. Hickey, Anvil.

Secretary-Treasurer, Dr. M. J. Lieberthal, Ramsay.

Delegate to State Convention, Dr. W. E. Tew, Bessemer.

Alternate, Dr. D. C. Pierpont, Ironwood.

The Gogebic County Sanitarium was decided upon as the place for the next monthly meeting.

M. J. Lieberthal, M. D., Secretary.

BERRIEN COUNTY

The Regular Monthly Meeting of the Berrien County Medical Association will be held at Niles, Thursday evening, November 20, 1924.

The following program will be given:

Dinner at Community House of Episcopal Church (cor. Fiftr and Broadway), 6:30 p. m.

Place of meeting: Dining room of Community House, 7:30 p. m.

"Cranial and Intracranial Birth Injuries," Norman F. Miller, M. D., Ann Arbor.

"Recent Additions to Our Knowledge of Chronic Nephritis," Phil L. Marsh, D. D., Ann Arbor.

Plans are being made to have several physicians from outside the County to lead the discussion of these papers.

After one look at the above program it will not be nceessary to urge anyone to attend this meeting. Dr. Miller is associated with Dr. Reuben Peterson in Ann Arbor and so he will need no further introduction to the Society. Dr. Marsh is from the Department of Medicine and we can be assured that he i swell qualified to present the subject that he has chosen.

We earnestly hope that there will be a large crowd present to greet these guests and give them a rousing reception. To all those who have attended meetings at the Episcopal Community House it is unnecessary to remind of the excellence of their dinners.

Receiving a copy of this program is an invitation to attend this meeting.

R. B. MOWARD, Secretary.

MONROE COUNTY

The annual meeting for elections of officers of the Monroe County Medical Society was held at the Park Hotel, Tuesday, October 21. At 6 p. m., the following doctors sat down to dinner: W. C. Ocker, C. T. Southworth, Varnum Southworth, F. C. Thiede, Jas. Humphrey, C. J. Golinvaux, J. J. Siffer, G. B. McCallum, H. W. Landon, all of Monroe, and Dr. W. B. Wickham of Detroit.

The meeting was called to order after dinner by President Landon and the following officers elected for the coming year:

President, E. S. Cornwall, LaSalle.
Vice President, Jas. Humphrey, Monroe.
Secretary-Treasurer, F. C. Thiede, Monroe.
Delegate to State Society, H. W. Landon, Monroe.
Alternate to State Society, C. T. Golinvaux, Monroe.
Medico-Legal Committee, C. T. Southworth, Monroe.

The secretary-treasurer's report was read and accepted. We also listened to report of Dr. Southworth, our delegate to the State convention.

It was moved that we increase our County dues from one dollar to two dollars a year, and with the ten dollars State dues, each member will pay twelve dollars for the coming year.

The application for membership of Dr. Varnum Southworth, a recent graduate of the Detroit College of Medicine, was read and Dr. Southworth was elected to membership. He will practice in Monroe with his father, Dr. C. T. Southworth.

We also listened to a talk from Dr. W. B. Wickham of Detroit on Tuberculosis. The doctor has charge of the monthly tuberculosis clinic, recently established in Monroe.

F. C. Thiede, Secretary.

HOUGHTON COUNTY

The Houghton County Medical Society held its regular monthly meeting at the Calumet high school, Tuesday, November 4th, at 8:30 p. m.

Dr. W. T. S. Gregg of the Calumet & Hecla staff, assisted by Mr. T. Jones, who operated the machine, presented the lantern slides of X-ray in Medicine and Surgery and read the explanation of the slides as furnished by Dr. P. M. Hickey.

The slides were loaned by the University of Michigan through the kindness of Dr. P. M. Hickey, and the Society takes this opportunity of thanking Dr. Hickey and the University for the slides, which were thoroughly enjoyed by all.

A very free discussion was held of the various slides and conditions to which they refer by all present. The Society then adjourned to lunch at the Miscowaubik club.

G. C. Stewart, M. D., Secretary.

ST. CLAIR COUNTY

The members of the St. Clair County Medical Society, on October 9th, tendered Dr. C. C. Clancy, new President of the Michigan State Medical Society, a banquet at the Hotel Harrington.

There were several out of town guests for the evening, including Dr. Angus McLean of Detroit, Dr. Harry Dibble of Detroit, and Dr. O'Reilly of Saginaw.

Dr. Theodore Heavenrich was the toastmaster of the evening, Dr. McLean and Dr. Clancy being the speakers.

Howard O. Brush, Secretary.

Among the Books

A Review and Frank Appraisal of Medical Books That are Proffered to the Profession by Publishers.

OPERATIVE SURGERY. Covering the operative technic involved in the operations of general and special surgery. By Warren Stone Bickham, M. D., F. A. C. S. In six octavo volumes, 5,400 pages, 6,378 illustrations and separate index volume. Cloth $10.00. W. B. Saunders Company, Philadelphia.

Our readers will eagerly welcome this fifth volume of a set of six that composes our most modern and dependable system of operative surgery. In this volume the standard of the four previous books is not only maintained, but enhanced. It deals with operations on the colo-rectal-anal tract, kidneys, ureters, bladder, urethra, male generative organs and vessels. Splendid illustrations abound through the text and elucidate most clearly the descriptive procedures. The obsolete and impracticable is happily relegated to the scrap heap. You seek and find what you want and it proves to be the best. We repeat, the system is a monumental accomplishment.

DEVELOPMENTAL ANATOMY, A Text Book and Laboratory Manual of Embryology, by Leslie B. Arey, Northwestern Medical School, Chicago.. Octavo vol. of 433 pages, 419 illustrations. Cloth, $5.50 net. W. B. Saunders Company, Philadelphia.

While essentially a text for students, it is a work of merit for everyone who is interested in man and his anatomical development. It should find a place in every modern laboratory.

HUMAN CONSTITUTION—A Consideration of Its Relationship to Disease, by George Draper, M. D. Octavo of 345 pages, 208 illustrations and 105 tables. Cloth, $7.50 net. W. B. Saunders Company, Philadelphia.

The object sought by the author is to present dependable methods of morphological study, the demonstration of the inadequacies of present observations and descriptive procedures, and finally to encourage interest in the study of the human constitution. This volume is the first one of a proposed series. It is a text that should be available to every hospital interne and would enable him to write more valued physical records. The author merits healthy support in this contribution and effort to bring about the ends announced as the basis of his monograph.

A MANUAL OF THE DISEASES OF THE NOSE, THROAT AND EAR, by E. B. Gleason, M. D. Fifth edition, revised. 12 mo. of 660 pages, 212 illustrations. Cloth, $4 net. W. B. Saunders Company, Philadelphia.

This splendid manual is of value to students, but of especial value to practitioners. It supplies them with the essential facts of the subjects covered. It serves as a splendid guide to them in the first recognition and management of these special diseases and enables them to institute intelligent modern treatment. It is most complete and forms a quick reference that is wholly dependable and modern. With it at hand there is no excuse for the average man to go very far wrong on this type of cases.

THE PRESCRIBING OF DIETS—A book of importance, with dietetically correct recipes with Gelatine, for Diabetes, Nephritis, high blood pressure and general mal-nourishment in infants and adults. Mailed postpaid and free of charge by the Charles B. Knox Gelatine Company, Johnstown, New York, to any physician or dietician on request.

The dietetic importance of pure, plain, granulated gelatine has attracted so much attention, and the de-

mand for more information has reached such a volume that the laboratories of the Charles B. Knox Gelatine Company have prepared a book of dietetically correct recipes with gelatine, for diabetes, nephritis, high blood pressure, gastritis, gastro intestinal disorders, fevers, constipation, obesity, and general mal-nourishment in infants and adults.

The recipes have been most carefully worked out under authoritative auspices, and with each recipe is given a quantitive analysis of carbohydrates, fat, protein and calory value.

The diabetic section of the book is a most valuable contribution to advanced dietetic practice, with or without the insulin treatment. Another important chapter is the report of T. B. Downey, Ph. D. Fellow at Mellon Institute (Pittsburgh), on the value of pure, unflavored gelatine as a protective colloid in the modification of milk in infant feeding, which in no way changes prescribed formulas. Dr. Downey has determined, by standard feeding tests, that the addition of 1 per cent of gelatine to a quart of milk, increases the yield of nourishment by about 23 per cent.

Furthermore, these feeding tests determined that the protective colloidal action of the gelatine was highly efficacious in aiding the complete digestion and resulting assimilation of other basic foods of the vegetable, fruit, meat and fish families.

A most important feature of this book is the simple and complete directions for the preparation of these dishes, without which a prescribed diet so often fails despite the care and caution of the physician.

ESSENTIALS OF PRESCRIPTION WRITING, by Cary Eggleston, M. D. Third edition, revised, 32 mo. of 146 pages. Cloth, $1.50 net. W. B. Saunders Company, Philadelphia

A valuable manual—covering the field set forth on the title page.

THE NEW METHOD IN DIABETES, J. Harvey Kellogg, M. D., Battle Creek, Mich. Modern Medicine Publishing Co., Battle Creek, Mich.

This third edition forms a text, or rather manual of wholesome information and advice. It tells in plain language what every competent physician tells his patient, but which they all too soon forget. It's a manual that you can advise your patient to secure and observe. It will instruct them as to diet, food values and intestinal hygiene and will enable them to reap the full benefits of the modern treatment of diabetes. Especial mention should be made of the many food formulas given and the food value of each. These recipes for diabetic dishes are most useful and enhance the text.

A TEXT BOOK OF MATERIA MEDICA FOR NURSES. A. L. Muirhead, M. D. and E. P. Brodir, R. N. Second Edition. Price $2.00. C. V. Mosby Company, St. Louis, Mo.

A compact, dependable quide and teacher for the student nurse. It obviates the confusion of endeavoring to obtain essentials by wading through a large text. Our training schools will do well to adopt this admirable text.

MEDICAL CLINICS OF NORTH AMERICA—(Chicago Nnmber, (Issued Serially), Volume VIII, Number 11. Octavo of 273 pages, 24 illustrations. Paper $12.00; Cloth $16.00. W. B. Saunders Company, Philadelphia.

Books and Journals must comprise the source of one's personal reading and study. They, however, cannot impart facts and practical application of principles effectively in all instances. We have long been of the opinion that a well written, well discussed clinical case affords opportunity for effectively presenting certain essentials and principles. These clinics fill that purpose. That is why they are so valuable. It is also the reason why we approve and recommend these clinics. Every man in medicine should include them in his study and reading. The present number maintains the high standard that has been established for them.

MEDICAL RECORD, VISITING LIST AND DIARY. Price $2.00. Wm. Wood Company, Philadelphia.

The handy, useful pocket record contains many valuable ready references and memoranda. It is of value in keeping one's engagements and call records.

PATHOGENIC MICROOGRANISMS. W. H. Park, M. D.; A. W. Williams, M. D.; C. Krumweide, M. D., all of the University of Bellevue. Cloth, 807 pp. Price $6.50. Lea & Febiger, PPhiladelphia, Pa.

The eighth edition of this recognized text maintains the excellency of former editions and so continues as an authoritative text. It contains the terminology adopted by the American Society of Bacteriologists and the grouping of microorganisms are so arranged. Of special merit is the discussion of immunization and the value of serums and vaccines. So to is the information regarding recent new facts pertaining to Scarlet fever, measles and typhoid fever.

To be possessed of the latest and recognized facts one cannot overlook this modern text that is so complete in desired detail. It belongs upon the desk of all students and progressive practitioners as well as specialists.

SAFEGUARDING CHILDREN'S NERVES. A handbook of mental health by James J. Walsh, M. D., and John A. Foote, M. D., with a foreword by Herbert Hoover. Price $2.00. J. B. Lippincott Company, Philadelphia.

A handbook of mental health in children for mothers, nurses, social workers, teachers and others dealing with the problems of child care and training. It answers many questions put to physicians by parents. It is practical and sane and can be recommended to the parent and guardian in confidence. It may aid in the better supervision of the growing child.

BASAL METABOLISM IN HEALTH AND DISEASE. E. F. DuBois, M. D., Russel Sage Institute. Cloth, price $4.75, 372 pp. Lea & Febiger, Philadelphia.

For one desiring more practical application of the principles of basal metabolism this text will be found reliable and informative. It sets forth this information in a readily understandable manner and is void of the speculative theories that confuse. We commend it to the man in general practice.

ABT'S PEDIATRICS—(Volume IV), by Isaac A. Abt, M. D., Northwestern University Medical School, Chicago. Eight octavo volumes totalling 8,000 pages with 1,500 illustrations. Cloth, $10.00. W. B. Saunders Company, Philadelphia.

The subjects discussed in this volume of Abt's Pediatrics, cover all that is worth while about them in a thorough manner. A possibly strong statement, but it is made following a diligent purusal of the text. Special emphasis of appreciation is recorded for the chapters devoted to the lungs and heart. It is a text pleasing to read and in which facts and principles are expressed in a manner that sets forth their relative merit in logical order of importance. We commend again the previous volumes and this one for they present modern pediatrics in a light that represents all that we know about the subject.